Railway Age

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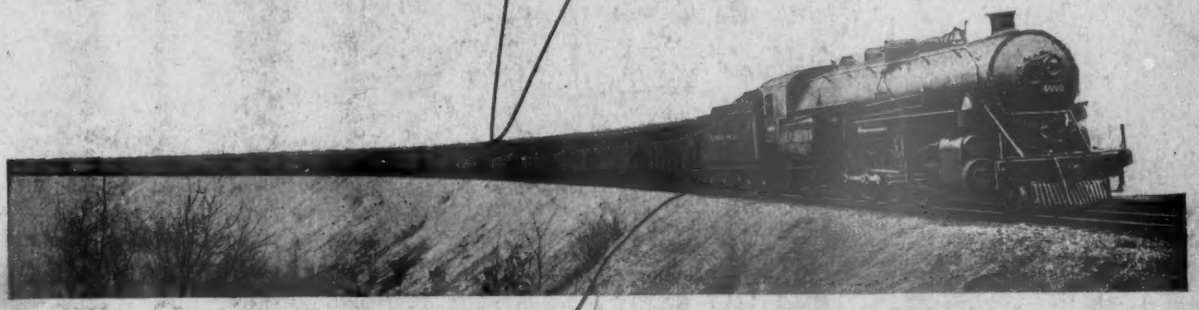

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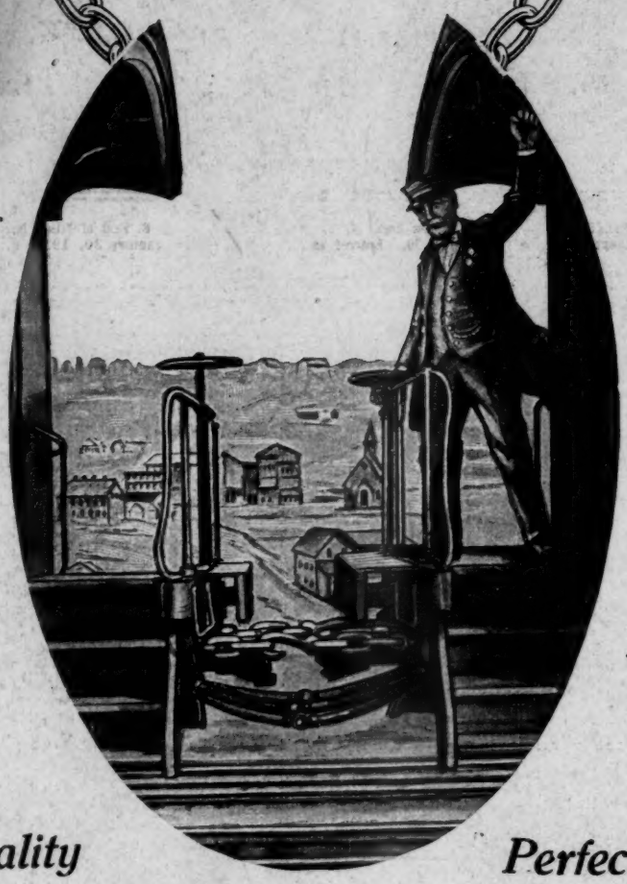

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LARGEST MANUFACTURERS OF RAILWAY CHAINS IN THE WORLD

EDITORIAL

Railway Age

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Annual Meeting of the T. & T. Division

The third session of the Telegraph and Telephone Division, Section I-Operating, American Railroad Association, which will be held at Winnipeg, Man., on September 22, 23 and 24, will be one of more than usual importance as it is the annual meeting and also the first session to be held this year. In addition to the consideration of certain special reports, seven interesting and valuable regular committee reports will come up for discussion and action. Such reports as Construction and Maintenance of Outside and Inside Plant; Protection Against Electrolysis and Against Lightning or Electric Light and Power Circuits; Message Traffic; Telegraph and Telephone Development and Inductive Interference will receive consideration. Certain reports will treat of such subjects as the proper strength of pole lines, wire line crossings and message traffic which have a direct bearing upon efficiency of train operation. It would thus appear advisable for the railway managements to take steps to be properly represented at this meeting in order that the association may have the benefit of as large a representative membership as possible acting on the reports presented. In this way those roads having representatives present will be enabled to take an active part in proceedings which will later be submitted to the parent association for approval and adoption.

The Ticket Protective Bureau

The railroads are now considering the re-establishment of the Railway Ticket Protective Bureau an organization started in 1903 to detect and prosecute forgers of railroad tickets and later to fight the strongly entrenched business of ticket scalping. The work of this bureau was taken over by the Police and Secret Service Section of the United States Railroad Administration during the period of federal control. The rule which should govern when questions such as this arise should be the favorable or unfavorable relation of the value of the work performed to the increased expenditure caused. Insofar as the Railway Ticket Protective Bureau is concerned, the savings which can be made through its efforts will so far overbalance the expenditure which its establishment and maintenance would entail that there should be little question as to the advisability of its re-establishment. Ticket scalper's offices are re-opening throughout the country and with higher passenger fares offering additional inducements for patronizing scalpers, a determined effort will have to be made sooner or later to suppress this evil. In addition tickets are now being issued, non-signature, non-validation and on simplified contract forms. This offers further inducements for the rapid extension of ticket scalping. The work of this bureau in combating the ticket scalping evil will thoroughly justify its existence. However, it has been suggested that its activity be widened to ascertain the extent of the withholding of cash fares and tickets on the part of railroad employees. This is an evil which has grown in a startling manner during the past two years. Knowledge of the establishment and maintenance of an organization, one of whose purposes is the detection and prosecution of dishonest railroad employees, would be, in itself, a remedial agent. The actual detections and prosecutions attributable to the bureau together with the psychological effect produced by mere knowledge of its existence, would undoubtedly result in the conservation of a large sum which would, under present conditions, be lost.

Camouflaged Material Stocks

For years the average tonnage of freight trains has been accepted as a satisfactory basis for comparing the efficiency of railroads operating through similar territory. Likewise the average net weight of loaded cars has been commonly considered a good index to operating efficiency, and now it is on the daily mileage of freight cars as well as their loading that the performance of many railroads is being compared. Comparisons of this sort have played a prominent part in raising the efficiency of individual railroads and for this reason they should be extended to every important feature of railroading subject to comparative analysis. The *Railway Age* recently advanced the suggestion that the quantity of unapplied material carried by each railroad in terms of the monthly requirements should be regarded as much an index to operating efficiency as the average train tonnage or the weight per loaded car. There is nothing about the operation of a railroad that will run into money more rapidly than an unnecessary accumulation of unapplied material. Every railroad executive should know the value of this material in terms of the monthly consumption and he should be able to compare this figure with other railroads with the assurance that the comparison was based upon a uniform basis of accounting. However, few railroads account for material in the same way and the general storekeeper whose communication appears in this issue fears that under the circumstance a comparison on this basis would work a great injustice on those railroads which are conscientiously accounting for all material not in actual use when compared with other roads which have disguised large quantities of unused material. But this, in itself, is an important reason why these figures should be included with other data bearing on the relative efficiency of each railroad. Once accepted as a basis for critical comparison it is certain that the scrutiny given these statements will cause a speedy reformation among the railroads who are camouflaging large quantities of unapplied material by various accounting means.

Applying a Platitude

Clerical labor for railroads has been so plentiful in the past, that price, not quality, was the governing factor in the selection thereof. Naturally the tools with which clerical labor worked were purchased on somewhat the same basis. In 1916 there were approximately 103,000 clerks employed on the roads reporting to the Interstate Commerce Commission receiving less than $900 a year each and about 67,000 receiving $900 a year or more. Even in 1917 a considerable change had taken place. Ninety-nine thousand clerks received less than $900 a year and 85,000 received $900 or more. The McAdoo wage award made a radical change in these figures, and,

were the figures available for conditions at the present time, it would show probably a complete reversal of the proportion of clerks getting less than $900 a year in 1916 with also a large increase in the total number of clerks employed. If a clerk hour costs from 50 per cent to 100 per cent more than it did in 1916, it might well repay someone to make a study of the conditions under which clerical help works for the purpose of determining whether or not there was some way in which conditions could be changed so that the average clerk would accomplish in an hour more than he is now doing. To treat clerical labor as if it still cost less than $600 a year per clerk and should therefore receive the minimum of attention and be given the cheapest of materials to work with is an expensive policy. It was probably a mistake to treat clerical labor in this way whether it cost less than $600 a year or not. The output per clerk hour can be very greatly increased by more careful training, better working conditions and better materials with which to work. This is a platitude but the truth contained therein is not by any means always applied.

How Are You Increasing Car Mileage?

The problem of car supply is measured by the needs of the country as a whole rather than those along any individual line, and the necessity for increasing the average daily mileage of cars is country-wide. There is, therefore, every reason for the widespread dissemination of information concerning methods contributing to the more expeditious movement of cars. A survey of the situation shows that some roads are more successful than others in speeding up the movement of cars on their lines. This is due in some instances to methods introduced over an entire system by the management of that road, in others to expedients adopted locally by the officers on the line. Regardless of the origin and scope of these methods they are now of national importance, when the roads are being taxed to the limit to meet the demands of their patrons for service. For the purpose of bringing out for general use those methods which are contributing to this important improvement, the *Railway Age* has announced a contest on "Means of Increasing the Average Miles Per Car Per Day" to which discussions are solicited with the belief that they will aid in the solution of this important problem. Papers should be written concisely, should preferably not exceed 1,200 words in length and should be confined to the presentation of practical measures within the ability of the roads to put into effect. To stimulate interest, prizes of $50 and $35 will be awarded for the two best papers received, while we will pay our regular space rates for others accepted and published. The prizes will be awarded on the basis of the practicability of the ideas presented, the extent of the improvements adoption of them will effect and the readiness with which they may be applied. All papers must be mailed to the editor of the *Railway Age*, Transportation building, Chicago, on or before September 30, 1920.

The Fifth Fuel Commandment: Vigilance

Eternal vigilance is the price of fuel economy. This is particularly applicable to the maintenance of a locomotive in a condition to operate efficiently from the standpoint of fuel consumption. There are innumerable things about a locomotive that may not be essential to getting the engine over the road but which are absolutely fundamental to the efficient use of fuel on the locomotive. The proper maintenance of a locomotive is obviously the function of the mechanical department but this is so highly essential to fuel efficiency that it is wholly within the province of an organization designed to promote fuel economy to exercise a certain amount of supervision over the maintenance of locomotives so far as this may be found to affect fuel consumption. Having outlined in the earlier commandments the relation of the organization to the men who are largely responsible for the economical use of fuel, the fifth fuel commandment relates to the condition of locomotives and specifies eternal vigilance in the proper maintenance of every detail about the construction of a locomotive that can affect fuel use. These details are all well-known and many good features, such as the condition of the arch and superheater, are generally well attended to. But the prevention of front end leaks, the elimination of needlessly restricted nozzles and attention to many other minor details requires far more consideration than these matters are, at present, accorded on many railroads. There is no reason why an absolute check on many of these details could not be maintained by the simple process of requiring the boilermakers when engaged in the monthly inspection of boilers as required by law, to certify at the same time to the size of the nozzle and the condition of other parts that bear an intimate relation to fuel consumption. This would at once furnish an accurate statement, periodically available, as to the condition of every locomotive with respect to those details which vitally affect the economic operation of a locomotive.

Freight Moved Breaks Record; Car Shortage Still Increases

THE LATEST STATISTICS on the amount of freight being moved by the railroads demonstrate at least two things.

The first is that there has been as yet no decline of general business activity in the United States. In the four weeks ended August 28 the railways moved the largest amount of freight they had handled in any four weeks of the present year, but the amount of freight demanding movement was so great that the car shortage actually increased. The requisitions for cars made by the shippers of the United States in the week ending September 4 exceeded by 146,000 the number that the railways could supply, as compared with 137,200 two weeks before. The fact that in spite of the increase in the amount of freight handled there was also an increase of the excess of orders for cars over the number that could be supplied demonstrates that there had been no slackening of general production.

The second thing which the statistics demonstrate is that the efficiency with which the railways are being operated is still increasing. In the four weeks ending with August 28 the number of carloads of freight moved was 3,853,822. This was 273,755 more than were handled in the same weeks of 1919, and 4,196 more than were handled in the same weeks of 1918. The amount of freight handled in August, 1918, was over 7 per cent greater than had ever been handled in that month before, and therefore the railways by moving more freight in August, 1920, than in August, 1918, set a new high record for that month.

The principal reason for the increases which are being secured in the amount of freight handled is the efforts the railway managements are making to increase the average miles moved by each car daily. Some weeks ago they set as a standard to be attained an average of 30 miles per car per day. The latest statistics regarding miles per car per day, which are those for July, show that they are steadily approaching this standard. They increased the average miles made daily by each freight car in the country from less than 20 miles in April, 1920, when the effects of the "outlaw" strikes were most felt, to 25.7 miles in July. This average of 25.7 miles in July, 1920, compares with an average of 21.3 miles in July, 1919.

The railway managements may well be proud of the record of improved efficiency they are making. The fact, however, that in spite of it the car shortage is increasing indicates that they must make still greater efforts. All signs are that the traffic to be moved this fall and winter will be heavier than ever before. Probably it will not be long until snow and cold weather will begin seriously to interfere with operation. The more freight they get moved while the weather continues good the better it will be for them and for the country.

Misleading the Farmers About Railways

AGRICULTURE is the basic industry of the United States and every other country. People cannot live without food. The farmers are the producers of it.

Second only to agriculture in rank as a basic industry is railroad transportation. Neither agriculture nor any other form of industry can be carried on under modern conditions with advantage to both producers and consumers without adequate railroad transportation.

The farmers are the most important class of people of the United States. They are the nation's bulwark against extreme radicalism. It is therefore a great misfortune to the whole country for them to be misinformed regarding railroad matters. It may lead to action on their part which will be unjust and harmful.

A striking example of the way in which the farmers are often misled has been afforded recently in Illinois. The secretary of the Illinois Agricultural Association gave out a statement saying he had had observations made upon the handling of freight cars in that state and had ascertained that 9,294 cars had been delayed at 494 railroad stations, and that 938 of these cars had not been moved by the railways seven days or more. Upon this alleged information he and numerous papers, including some agricultural papers, based the charge that there really was no "car shortage" but that the reason why freight was not being satisfactorily handled was that the railways were being operated inefficiently.

President Markham, of the Illinois Central, ascertained that sixty-six of the cars alleged to have been delayed seven days or more were on the Illinois Central, and got the reports made regarding them. He then had the records of his road checked and ascertained that as to these sixty-six cars the following were the facts:

Nineteen of the cars reported as delayed on the Illinois Central were not on its lines at all.

Nineteen were undergoing heavy repairs in its shops and therefore could not be moved.

Two were duplicated in the reports.

Two were not detained at all at the stations named, but were moved forward on the days they arrived.

Twelve were delayed for periods ranging from periods of one to six days.

Only twelve, or 8 per cent of the number alleged, were delayed seven days or more, and six of these were delayed not by the railway, but by consignees in whose hands they were at the time. Of the six delayed while in the hands of the railway, all but two were delayed by unavoidable causes.

Doubtless similar investigations, if made by the other Illinois lines, would show that the report of the Secretary of the Illinois Agricultural Association was as misleading as to them as it was as to the Illinois Central. Mr. Markham has written an open letter to the secretary of the association giving details as to the handling of each individual car reported as unduly delayed on his road. Whether those who have given widespread circulation to the alleged results of the investigation made by the secretary of the Illinois Agricultural Association really desire to help the transportation situation or merely to arouse antagonism among the farmers against the railroads, will be determined by whether they give as much currency to Mr. Markham's refutation of the charges of the secretary of that association as they did to the charges themselves.

Three Roads to "Industrial Democracy"

ALL OVER THE WORLD, including the United States, propaganda is being carried on against the present industrial system and in favor of what is called "industrial democracy." Most of those who use these words mean by them the turning over of the management of railroads, coal mines and other industries to the manual workers employed by them.

The *Railway Age* also is in favor of "industrial democracy." We realize that the existing system of ownership and management of large industries is very defective, and must be changed in some ways if private ownership and management is to endure and to be made of the greatest possible value to society. But our conception of what really would be "industrial democracy," and of the means which should be used in establishing it, differ from those of the socialistic and Bolshevistic agitators.

The radicals may be roughly divided into two classes according to the views they hold as to what would be "industrial democracy," and as to the means by which it should be established. One class believes the government should buy the railways, coal mines and other industries and turn them over to the employees to manage. It favors political agitation and action for giving effect to its theories. It is prominently represented in the United States by the advocates of the application of the Plumb Plan to the railroads and of some similar plan to the coal mines. Under the Plumb Plan the American public would buy the railroads and guarantee the interest on the money invested in them and also their operating expenses, and the employees would manage them. If any loss were incurred, the taxpayers would pay it all. If any profit were made, the employees would get half of it. All advocates of such plans argue that the industries it is proposed to buy are enormously overcapitalized, and that when they are bought the "water" should be squeezed out. This is merely a euphemism for saying that a large part of their value should be confiscated. It is difficult for a rational mind to detect the "democracy" in a scheme which provides for all the people to acquire large industries and turn them over to the comparatively few people employed by them to manage as they please, and chiefly for their own benefit.

The second class of advocates of "industrial democracy," who are now dominant and very active among the radicals in European countries, and are largely represented in this country, are opposed to the slow methods of political agitation and government purchase. They are in favor of the manual workers, the French name for whom is the "proletariat," taking possession by force of the plants and mines in which they are employed. Some of them would practice peaceful sabotage—that is, the policy of constantly forcing wages higher, doing less work for them, and destroying property when they can do it without getting caught—until management by the capitalists will be rendered impossible. Others advocate "direct action"—that is, the policy of bringing about general strikes which will stop the operation of industry until the capitalists and public are coerced into accepting the rule of Working Men's Councils both in government and in industry. Others would go yet further, and use not only "direct action" but the torch, the bomb, and the machine gun for the wholesale murder of everybody

who opposes proletariat rule in politics and industry. This policy has been followed in Russia. An attempt has just been made to carry it out in Italy. It is constantly being threatened in Great Britain. It is constantly being advocated in the United States.

There are certain obvious obstacles in the way of the establishment of industrial democracy by either of the above outlined methods. It is difficult to convince the public that it should assume all the risks of ownership of railroads, coal mines and other industries and turn them over to the employees to run. The public, in most countries, sees more clearly the probabilities of loss than the possibilities of gain for itself in these plans.

As to the use of "direct action" and other methods of violence for establishing the dictatorship of the proletariat, those who own and those who hope to own property may be relied upon to meet force with force, violence with violence. The manual workers, by employing these methods, might eventually succeed in establishing their dictatorship, but only after a struggle in which most of the railroads and other industrial plants they were bent on seizing were destroyed, as they have been in Russia. The chances are many to one that in a country such as Great Britain or the United States, an uprising of the proletariat would be a dismal failure; but if it succeeded, the proletariat would establish its dictatorship over only an industrial graveyard. Most of the people of Great Britain and the United States would see every factory, every mine and every mile of railroad destroyed before they would yield to the dictatorship of the proletariat or of any other class.

There is another road besides those mentioned which may be taken to "industrial democracy." Unlike the two already mentioned, it would lead to a real and not to a fraudulent "industrial democracy." The employees of the railways and other industries of the United States have not only a great political power which can be used to influence elections, and a great physical power which could be used in an effort to seize other people's property, but also a great latent financial power which could be used to acquire property. The employees of the railways of the United States are now being paid about $3,600,000,000 in wages annually. This is four times as much as the largest amount of interest and dividends ever paid to all the bondholders and stockholders of the railways in any year, and nine times as much as ever was paid to their stockholders in any year. The railway employees recently received an advance in wages of $625,000,000 a year, which is 50 per cent more than the largest amount of dividends ever paid to the stockholders in any year. As we pointed out in an editorial, entitled "Why Do Not Railway Employees Buy American Railways?" in our issue of September 10, the employees could, by saving and investing in railway stocks merely their recent advance in wages, acquire a majority of the stock of all the railways in the United States within three to five years. The third road to "industrial democracy" which we have in mind is the saving by the employees of railways and other industries of, say, one-fifth of their annual wages and the investing of it in the stocks of the industries which they desire to manage.

The radical agitators tell wage workers that they are "wage slaves." If they are, they can purchase their manumission within a very few years by the simple expedient of saving their money, pooling their financial resources, and buying control of the stocks of the concerns by which they are employed. The combined incomes of the so-called "wage slaves" surpass many times over the total incomes of all the rich. There need be no fear that the rich stockholders of the railroads and other industries would refuse to sell out. They would gladly sell if reasonable prices were offered for them.

What more perfect form of "industrial democracy" could there be than one under which the employees of the great industries were also the owners and, therefore, in control of their management? It may be said that for the manual workers to save parts of their wages and invest them in railroads and other industrial concerns would involve sacrifices and risks. But the fortune of almost every man who ever grew rich in this country was founded on savings accumulated through sacrifices and invested at more or less risk.

As a matter of fact, the real test of whether men have the character and brains needed to manage businesses successfully is whether they have the self-control and foresight required to save money, no matter how small their incomes, and the wisdom to invest it where it will earn profits. No man who lacks these qualities is competent to participate usefully in the management of any business. Therefore, to say that the employees of railways and other industries cannot or will not save parts of their wages and invest them wisely, is to say that they have not brains enough to participate successfully in the management of business, and is a condemnation of the practicability of every scheme of "industrial democracy."

Scattered all over the United States are millions of farmers who began life as farm hands, later became tenants, and by saving part of their incomes became farm owners. Have the manual workers on railroads and in factories any better right to become owners and managers of property by government fiat or by force than these farmers had to become managers of farms by similar means? There are many thousands of small and large shop keepers, manufacturers, mine operators and stockholders in railroads who have acquired their property in the same way the farmer acquired his.

Where, and when, did the employees of railroads, coal mines and other industries get any right to acquire the ownership or management of property at the expense of other people, or by force, that these people did not have?

If the employees of the railways, the coal mines and other large industries believe they have the right and the ability to manage these industries, they can demonstrate their right and ability by working hard, saving their money and buying the industries. They cannot demonstrate it any other way.

Delaware, Lackawanna & Western

THE DELAWARE, LACKAWANNA & WESTERN and "a rich coal road" are often used as synonymous, and it is perfectly true that the extraordinary earning power of the Lackawanna in times past has rested primarily on its coal traffic and the strategic position of its coal fields in relation to tidewater. The Lackawanna, however, used this surplus earning power to build up a double-track trunk line railroad from Buffalo to New York, which is generally conceded to embody the very best that money and science can furnish in the way of a transportation machine. It was likewise generous to its officers and employees, and, under a firm management, built up a loyal and efficient organization more nearly like a well regulated and disciplined family than could have been the case with a property larger and the forces more scattered and numerous. The corporation turned over to the government a very perfect physical property and a highly organized, well-trained, loyal and obedient organization.

Both the property and the organization gave a good account of themselves under government operation. Total operating revenues in 1919 amounted to $71,824,000, and in 1918 to $68.740,000. In the year prior to government operation, total operating revenues amounted to $57,211,000.

Operating expenses in 1919 were $56,065,000; in 1918, $59,926,000, and in 1917, $37,676,000. The rental paid by the government averaged $15,749,000 per year. Actually, the property earned a net operating income under the government of $12,287,000 in 1919 and $15,854,000 in 1918.

Measured in service, the comparison may be stated as follows: In 1919, the Lackawanna handled 4,830,000,000 miles of revenue freight; in 1918, 5,575,000,000, and in 1917, 5,591,000,000. It handled 643,000,000 passengers one mile in 1919, 605,000,000 in 1918, and 585,000,000 in 1917. The average revenue freight-train load in 1919 was 860 tons; in 1918, 840 tons and in 1917, 916 tons. The revenue per ton per mile in 1919 was 1.07 cents; in 1918 it was 0.90 cents, and in 1917, 0.75 cents. The average revenue per passenger per mile was 1.92 cents in 1919; 1.85 cents in 1918, and 1.59 cents in 1917.

Under government operation, maintenance expenses measured in dollars and cents were much higher. Thus, maintenance of way cost $7,682,000 in 1919, $5,553,000 in 1918 and $4,515,000 in 1917. Maintenance of equipment cost $15,133,000 in 1919, $13,338,000 in 1918 and $8,929,000 in 1917. Actually, however, W. H. Truesdale, president, says that expenditures during federal control for maintenance were not sufficient to renew rails, ties and ballast to the extent necessary fully to cover wear and tear nor to equal the quantities used during the test period; neither was freight equipment kept up to the Lackawanna standard. In this the Lackawanna is in somewhat the same situation as most other roads, the Lackawanna having this advantage, that the very high standards which it had maintained and the large proportion of structures, etc., which were of the most permanent kind, enabled it to withstand deterioration better than many other roads.

It is not of this physical deterioration that Mr. Truesdale, in his annual report, speaks most feelingly—it is of the harm done to the organization. Especially does he criticize the establishment of an eight-hour day for all classes of railroad employees. Coming as this does from a man who has been both generous to his employees and officers and a strict disciplinarian, it deserves careful consideration. Railroad work demands long training, strict obedience to rules and ability to take responsibility under an unforeseen combination of circumstances. Mr. Truesdale built up an organization that had these qualities to a remarkable degree, and when he says that "the most casual knowledge or investigation of the situation of the railroads will demonstrate conclusively that they have suffered more than any other employers of labor by reason of the establishment of the eight-hour working day for their employees," he deserves to be listened to.

In its coal department the company went through much the same experience as other anthracite mining companies. There was a decreased demand for coal in the first half of 1919 and a very good market for coal in the last half of 1919. Sales of coal and rents of coal lands yielded $44,325,000 in 1919 as against $39,825,000 in 1918. Mining expenses amounted to $39,344,000 in 1919 as against $36,192,000 in 1918. The profit from the coal mining department was $4,990,000 in 1919 and $3,627,000 in 1918.

The following table shows the principal figures for operation of the railroad property under government operation:

	1919	1918
Mileage operated	931	931
Coal freight revenue	$19,055,523	$19,009,846
Merchandise freight revenue	32,839,878	31,287,554
Passenger revenue	12,380,787	11,204,813
Total operating revenues	71,824,047	68,740,076
Maintenance of way and structures	7,682,365	5,552,541
Maintenance of equipment	15,132,815	13,337,602
Traffic expenses	495,947	664,088
Transportation expenses	30,661,441	28,613,367
General expenses	1,368,205	1,219,107
Total operating expenses	56,065,251	49,925,685
Taxes	3,449,429	2,941,212
Operating income	12,287,412	15,858,906

Letters to the Editor

A Coroner on Prevention of Collisions

ALBANY, N. Y.

TO THE EDITOR:

"How is it that the revered *Railway Age* has made no comment on the collision at Schenectady on June 9, when 14 people were killed?" This question was asked me the other day, and I pass it along to you. The fact that in its causes this collision was almost an exact duplicate of the South Byron disaster of last January reminds us that the whole problem of collision causes is still waiting for an authoritative solution. What practical progress has been made since South Byron? Or, if the apparent success being demonstrated by the Miller automatic stop on the Chicago & Eastern Illinois, and the passage at Washington of a law giving power to the Interstate Commerce Commission can be taken to be elements of real progress, what signs can you see of co-operation or co-ordination on the part of these different elements?

The Schenectady collision is in one point different from other recent cases in that a coroner, more than usually intelligent, has made a pertinent comment. Coroner Baxter asks why the railroads do not take as much care to have perfect men as they do to have perfect machinery; why they do not examine their employees as thoroughly and as scientifically as they do their locomotives and their automatic block signals. Coroners frequently say foolish things; and railroad officers, in spite of their apparent neglect, do know a thing or two about maintaining high standards of mental and physical efficiency among their enginemen; but I believe it is fair to say, nevertheless, that the public is warranted in asking the railroads to answer this coroner's question. Are our enginemen as efficient and reliable as they might be? What attitude should the public take toward the railroad manager who says, after a collision on his line because an engineman has fallen asleep in his cab, that the management has done everything that can be done?

E. H. W.

Railroad Section--A. S. M. E.

STATE COLLEGE, Pa.

TO THE EDITOR:

Your editorial note in the issue of July 2 points out the kind of service which may be rendered by the new Railroad Section of the American Society of Mechanical Engineers. The various railroad clubs and the Mechanical Section of the American Railway Association have done and are doing an important work; but is there a single society where the railway and the railway supply engineers have an equal voice and which has as its central thought the scientific development of the mechanical side of railroading? By scientific development, we mean a practical improvement, based upon analysis and investigation, rather than upon merely cut-and-try methods.

It is fair to assume that the 400 members of this section believe that if it is to function, the section must have a clearly defined purpose and that it shall definitely influence the present and the future development of the mechanical side of railroading. To this end, a suggestion may not be out of place. Let the papers presented be carefully selected, thorough in analysis and accurate in their references to fundamental principles. Allow ample time for discussion and shape it so that more of the younger men will take an active

part. Keep the discussion strictly technical and free from a mass of isolated information far afield from the subject under immediate consideration. Sacrifice quantity for quality and tie closely to broad underlying principles.

The section may render an important service through its Research Committee. As a first step, the writer would suggest that a list of say ten especially selected subjects be presented and lines of procedure be suggested so that the results will fit into the work with which the problems are directly related. There are good investigation problems on all sides, but good energy is sometimes worse than wasted by misdirected efforts or through lack of knowledge of what has been worked out by others. If the newly awakened interest in research can be guided, we may expect to see important results, not the least of which will relate to the scientific development of the locomotive.

A. J. Wood.

[Have any of our readers suggestions as to the ten subjects which should be discussed?—Editor.]

The Cart Before the Horse

To the Editor:

I have read with much interest your editorial in the issue of the August 27, entitled "Frozen Material Stocks." The idea is excellent, and I hope the day will come when we can make a comparison of store stocks on the same basis as the roads now make comparisons of operating revenue, mileage, and other such statistics. However, in this case, there is a great danger of getting the cart before the horse. Before any such plan as you mention could be worked out, there must first be a solid foundation of common accounting practices; for instance on some roads all material, not only in store stocks and material yards, but material along the line as well, is carried in material on hand account until used, when it is charged to the appropriate operating or betterment accounts. On other roads, a certain small portion of material as carried in store stocks is carried in a material on hand account, and other material is shipped indiscriminately along the line and turned over to using departments in shops, roundhouses, various construction jobs, and immediately charged out to operating expenses or betterment accounts before being used.

Before the question as to the least quantities of material that can be carried to meet the occasion, can be decided and before we can determine how our railroad compares with our neighbor, we must first be assured that we are accounting for material on the same basis.

I believe the day will come when prescribed accounting practices will declare just what must be done, what material should be carried in material on hand account, and when that shall be charged out to operating or betterment accounts. Until such a declaration has been made, or until such a practice is a common one through voluntary agreement, any comparisons now made are bound to result to the detriment of the best organized railroads, as they are the ones who have the correct practices. Many other roads which can make a magnificent showing on paper may actually have twice the investment in unapplied materials that the roads making an apparently far worse showing have in reality.

It has also been my observation that even the value at which material is taken into stock is not always standard. For instance, on one large railroad even freight charges on materials amounting to many thousands of dollars a month, are not being charged into the cost of the material, but currently charged out to operating expenses monthly on the basis of the shop pay roll distribution for that month.

This and many other similar practices that have come to my attention prove very conclusively that at the present time the roads are at such a variance in their practices that any comparison is almost useless, in fact, it would work a great detriment and be a harm rather than of any value. I do not mean to imply that the plan you have mentioned is not creditable and should not be carried out; it is creditable, and it should be the end to which we should all strive. The only point, therefore, that I desire to make is that we should look well to our foundation before we build the structure, and make absolutely sure that we are building upon a foundation that is correct and solid enough to stand upon.

General Storekeeper.

Promoting From Within

Buffalo, N. Y.

To the Editor:

"This important promotion of one of the oldest members of the organization in years of service is quite in accord with the company's tradition of filling all important positions from within its own ranks rather than from without." (From "Co-operation," published by the American Radiator Company, and commenting on the promotion of Archer A. Landon to the vice-presidency.)

How I wish that you could make every railroad executive and official in the country read and take to heart the essence of these few words! Now, when changes have become more or less necessary for the health of the railroads, how much it would help them to build up strong, vigorous personnels by the application of this rule. There is nothing visionary about it; it has stood the acid test of 28 years' application for this company. The men at the head are not merely practical men; they are practical men who, through the association of years, have learned to know every detail that affects the company's operation.

When I was in the game I often wondered why such a practice had not been more generally adopted by the railroads, and now that I have been with an industrial concern long enough to obtain a better perspective of railroad policies, I wonder still more. The company I worked for was one of the strongest, financially and physically, in the country. Its treatment of employees left little to be desired. But time and time again I have seen strange men pulled in from foreign roads and given places in which the company's own men should at least have been given a chance. Nothing sours a man more quickly, nothing embitters him more, than knowing he has been unjustly treated. And such treatment is unjust, say what you may. Give the man next in line the chance; if he doesn't make good, it's up to him. But give him the chance!

Business papers have been full of the cost of labor turnover for the past few years. It costs money to break in a new man, even if he's just going to push a truck. Of course! Then how much more does it cost to break a new man into a responsible position? And when you've brought the new man in and taught him the ropes he's got a disgruntled organization behind him.

"Aw, to hell with the company! They don't give a man a chance. Why should I do that? It ain't my work."

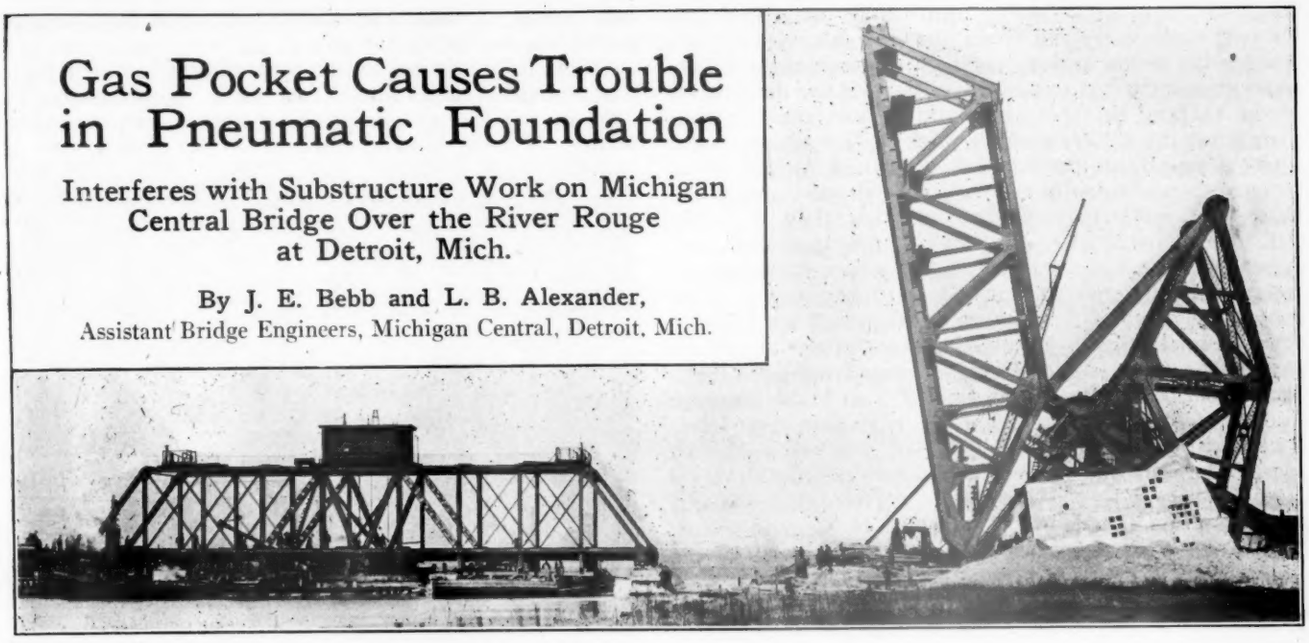
The attitude's wrong? Certainly. But it's human nature just the same. And just as long as the men have real justification for feeling this way the company is paying for a lot of lost motion. Think it over, you gentlemen of the railroads, and see if it is not so. Your industry has an irresistible fascination, there is less drudgery to it than to almost any other. Give your men the same opportunity of advancing as they would have in other lines of work and you'll have an organization that can't be beaten for loyalty, efficiency and accomplishment.

W. B. Keefe,
American Radiator Company.

Gas Pocket Causes Trouble in Pneumatic Foundation

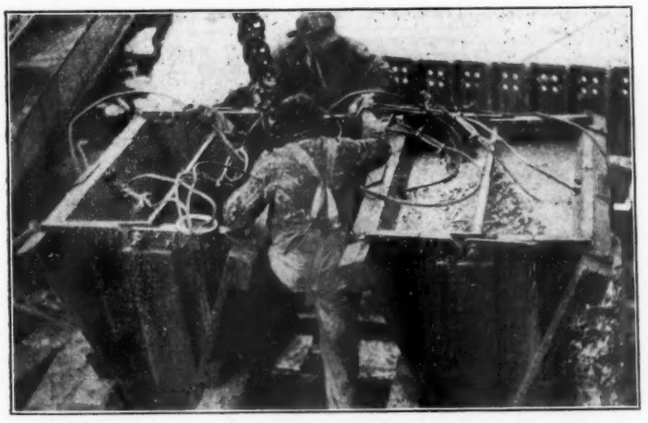
Interferes with Substructure Work on Michigan Central Bridge Over the River Rouge at Detroit, Mich.

By J. E. Bebb and L. B. Alexander,
Assistant Bridge Engineers, Michigan Central, Detroit, Mich.



The Old Bridge About to Be Floated on Two Steel Barges Controlled by Two Tugs

THE LIBERATION OF HYDROGEN-SULPHITE GAS dissolved in spring water was one of the principal problems encountered in the construction of the substructure for a new bridge of the Michigan Central and the New York Central over the Rouge river at Detroit, Mich. The difficulty was encountered in connection with pneumatic foundation work and led to the temporary discontinuance of operations on one of the piers with the result that the supply of gas was eventually exhausted, allowing the work



Wooden Buckets Used to Place Concrete Under Water

to be resumed. The new structure, which was placed in service on May 4, is a Strauss single leaf bascule bridge of 125 ft. clear span with a square crossing. It provides two tracks and is designed for Cooper's E-70 loading with full impact allowance. It replaced a jointly-owned swing bridge erected in 1887.

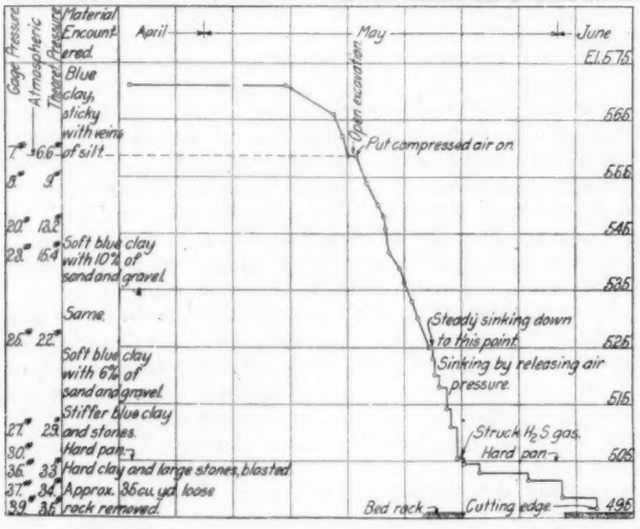
The present project was brought about as the result of an appropriation by Congress in 1917 of the sum of $490,000 to improve the Rouge river to permit the use of this stream by large lake freighters up to Maple road and the new blast furnaces of the Ford Motor Company and open up to industrial development the large area lying directly west of the City of Detroit. It involves a channel depth of 21 ft. below normal water level, a width at the bottom of 200 ft. and a minimum clear span of 125 ft. at bridge crossings. It also contemplated straightening the channel, eliminating the natural bends and short turns. As a consequence, the new channel lies well to the north of the old channel at the railroad crossing. The old structure was built in 1887 by the Detroit Bridge & Iron Works and consisted of a double-track, rim-bearing swing bridge 160 ft. long with a deck girder approach span on the north end.

Owing to the character of foundation condition it was desirable to carry the four piers supporting the dead load of the new bridge to bed rock, 90 ft. below the base of rail, or 78 ft. below the usual river level. These four supports are concrete cylinders 13 ft. 2 in. in diameter and joined at the top by a reinforced concrete framework. The cylinders were sunk by the pneumatic process through material which is generally described as soft blue clay. The progress report chart records the character of material encountered. The rest pier which supports the free end of and receives live load only from the movable leaf was supported on a pile foundation. Piles driven into this ground are frequently erratic as to load carrying capacity unless followed down to hard pan as was done for this pier.

The working chamber in each caisson was 7 ft. 6 in. high and 7 ft. 6 in. in diameter at the top, flaring out to the cutting edge at the bottom. It was lined on the sides with 3-in. yellow pine thoroughly calked and the top covered with 3/8-in. plates having riveted and welded joints. The whole was enclosed with reinforced concrete and protected by a heavy cutting edge made of two angles and a plate. A 36-in. main shaft and a 24-in. material shaft were used. The main shaft was made of 8-ft. sections, each of which could be made into a complete air lock at any time by bolting on doors near the top and bottom. The usual procedure was to leave one door bolted to a section 8 ft. up from the bottom of the shaft for emergency use and to keep one at the top end and one at each of the two joints nearest the top. This type of air lock has much to commend it for simplicity and safety.

The outside forms for the caissons were made of 3-in. yellow pine (S4S) held in position at frequent intervals by hoops of structural steel angles. These hoops were recovered before sinking below the surface and replaced at the top of the caisson. The main and material shafts were

boxed by means of a wooden form before concreting, thus allowing the recovery and re-use of rather valuable material. The sealing of the working chamber, however, made it necessary to lose the first section of shafting. After the removal of the shafting the opening was filled with concrete, thus completing the solid circular section. The caissons were sunk as rapidly as possible and concreting carried on at frequent intervals due to the limited headroom between the water level inside the cofferdam and the falsework. The traffic, involving numerous switching movements, was disturbed but little. Except for the experience with the hydrogen sulphide nothing unusual was encountered, other than the tendency of the bottoms of all piers when halfway down to rotate slightly about some point in the top of the piers. The gas was encountered in one of the piers when 21 ft. from bed rock. It was emitted from highly charged spring water having a head of 12 ft. more than river level. It appeared to come up through test hole and had a striking odor. The men who worked in it for several days experienced swollen and badly irritated eyes, the effects varying greatly with the individual. After going 19 ft., or to within 2 ft. of bed rock, four men working in the chamber were overcome temporarily and it was decided to abandon the pier



Record of the Sinking of Pier 4 Where Hydrogen Sulphide Gas Was Encountered

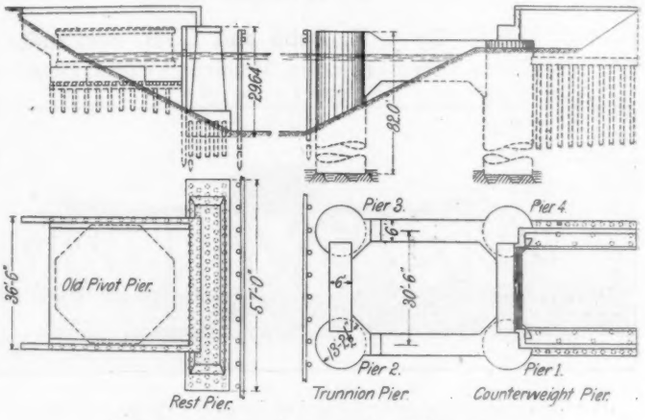
for the time. The air pressure was released and left off for 50 days, the spring flowing constantly meanwhile.

The remaining two piers were completed with but little sign of gas. Connections were noted between these piers and the one mentioned above by slight blowouts. The spring apparently took the gas out by the easiest path but it was not apparent why other springs were not encountered as a test hole was drilled approximately 15 ft. into bed rock for each pier. The odor frightened away many workmen because they seemed to associate it with the more deadly marsh gas.

After completion of the two piers, work was again resumed on the pier temporarily abandoned with considerable trepidation but with no bad results for the gas had apparently become partly exhausted. The writers concur in this conclusion because of similar experience in the case of a 40-ft. open excavation to bed rock. There when hard pan about 6 ft. thick was reached the gas was encountered and affected the workmen's eyes in the same manner. To overcome the trouble holes were drilled through the hard pan and capped with inverted galvanized buckets. Ten-ft. lengths of pipe connected to these buckets carried the gas above the workmen's heads but after a few days it was found that this protection was no longer necessary.

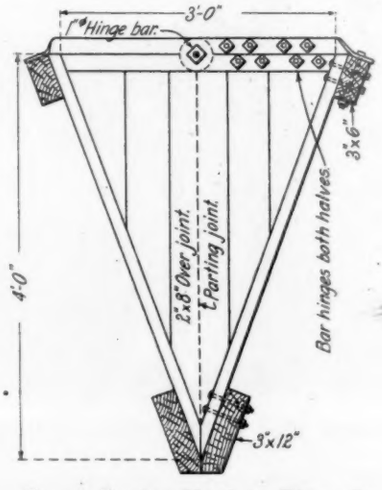
Owing to the limited concreting headroom it was impractical to employ guides for the four piers. Consequently, the foreman was put to considerable pains to keep the piers plumb. Typical blocking used in levelling up a pier is shown in a small sketch.

The rest pier stands upon a cluster of 123 timber piles 50 ft. long, built within a steel sheet pile cofferdam. The foot-



Plan and Elevation of the Substructure

ing for this pier, with its bottom some 16 ft. below low water level, had to be poured under water to seal the cofferdam. When the concrete seal had been placed in the bottom of the cofferdam and sufficient time allowed to set, attempts to unwater proved unsuccessful and it was found necessary to drive a row of 4-in. plank around the steel sheet piling to form a double wall with the intention to puddle between the two walls. It was found, however, that the silt of the river bed would not sustain the weight of clay

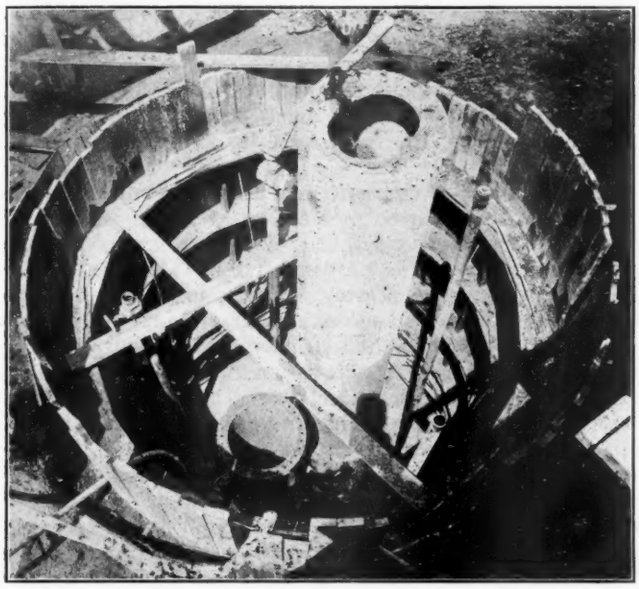


The Bottom Dump Bucket Used to Place Concrete Under Water

and sand, the filling subsiding after it reached a certain height. This difficulty was overcome by the use of manure, obtained from the Michigan Central stock yards at West Detroit. The use of this material proved very satisfactory and sealed the walls of the cofferdam so effectively that it was pumped out easily and very little pumping was found necessary to keep down the seepage water.

The concrete seal was placed by means of two specially designed buckets. These were made on the job of timber with iron fittings and proved very satisfactory. They were

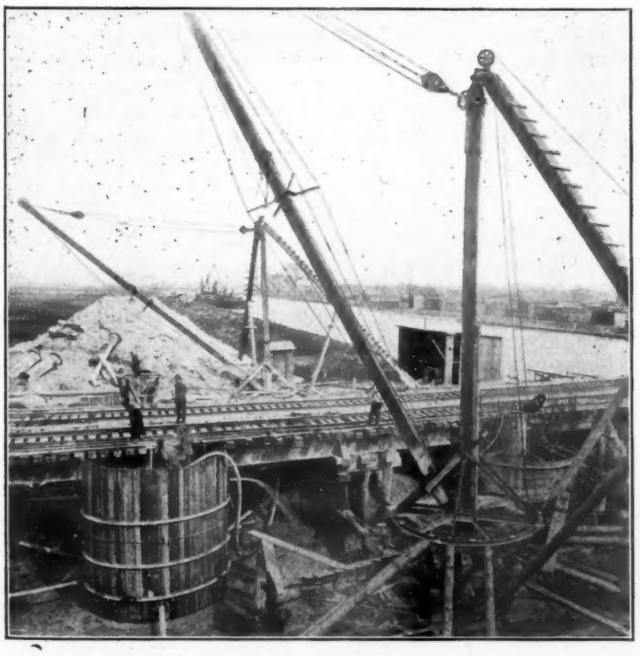
wedge-shaped and each held a mixer batch of concrete and was suspended from the derrick booms by means of two lines, one, the "load line," passed down around the bottom holding it closed. After the loaded bucket was lowered through the water until it touched the bottom the load was



A Bird's-eye View of Caisson No. 3, Showing Forms, Shafting and Blow-off Pipe

transferred to the trip line which left the bucket free to open (like the halves of a clam shell) and let the concrete pass out gradually. The buckets were not covered.

It will be noted that the rest pier is located directly north of the pivot pier of the old bridge for the reason that the new



General View of Foundation Construction, Showing Caissons 2 and 4 in Process of Sinking

channel lies to the north of the natural channel. It is intended to construct two "curtains" or wing walls running back from the rest pier to envelope the old pier completely and thus avoid the expense of removal.

The superstructure of this bridge comprises 1,990,000 lb. of structural steel and 131,300 lb. of machinery. The two winged counterweights each contains 204 cu. yds. of concrete weighing in one portion 146 lb. per cu. ft., and in the other 166 lb.

The desired unit weights were obtained by adding steel punchings to the concrete. The bridge is electrically operated and the movements are controlled from an interlocking tower located on the north bank of the river and about 60 ft. from the end of the bridge.

The bridge was designed under the 1917 specifications for Steel Railroad Bridges of the New York Central Lines and those of the American Railway Engineering Association for movable bridges. The estimated cost, including foundations, structural steel, machinery and all equipment is $541,000.

The structure was built by the Michigan Central under the supervision of Col. G. H. Webb, chief engineer, and G. C. Tuthill, bridge engineer. The Missouri Valley Bridge & Iron Company, Leavenworth, Kans., was the contractor for the substructure, and the Wisconsin Bridge & Iron Company, Milwaukee, Wis., the contractor for the superstructure. The electrical equipment was installed by the Norwood-Noonan Company of Chicago.

Intrastate Rate Proceedings

JOHN E. BENTON, general solicitor of the National Association of Railway and Utilities Commissioners, has issued an additional bulletin giving a summary of the orders entered by state commissions in advanced rate cases which have been received since the date of his last bulletin, as follows:

Florida. Commission on August 26 authorized increase in express rates, effective September 1, on intrastate business within its state of 12.5 per cent, except that rates on milk and cream may be made equal to those contemporaneously applied by railroads between the same points. The case is left open to make such changes as might prove to be necessary. Effective September 1 the commission authorized the filing of tariffs by steamboat companies making freight rates applying on Florida traffic based upon an increase of 25 per cent in the rates effective June 24, 1918, and a further increase of 25 per cent upon the rates so arrived at. This increase, together with the authorized increase of 20 per cent in passenger fares, is to be governed by the rules of the commission in effect on June 24, 1918. Excess baggage rates are increased 20 per cent, except that where stated as a per cent of, or dependent upon passenger fares, the increase in the latter will automatically affect the increase in the excess baggage charges. There was no opposition to the increases asked for by the steamboat companies.

Georgia. Commission on August 26 authorized increase in express rates, effective September 1, of 12.5 per cent, with the same limitations and conditions prescribed by the I. C. C. in its report in Express Rates, 1920. Promulgation of its order in no wise precludes commission from making such changes as might prove appropriate affecting express traffic. Commission has not considered supplemental petition of Express Company for further increases alleged to be necessary as the result of the award of the Labor Board, granting increased wages to express employees.

Iowa. In a supplemental order, order dated August 24, rates on soft coal are increased by adding 15 cents per ton to the rates fixed by Iowa Classification No. 16 (items 58 and 60) plus the following specific amounts: Where rate per ton is 0 to 49 cents, increase per ton 15 cents; where rate per ton is 50 to 99 cents, increase per ton 20 cents; where rate per ton is 100 to 199 cents, increase per ton 30 cents; where rate per

ton is 200 to 299 cents, increase per ton 40 cents; where rate per ton is 300 cents or higher, increase per ton 50 cents.

Louisiana. Hearing on application of carriers for advanced rates originally set for September 21, 1920, has now been advanced to September 9.

Maine. Rate increases in harmony with those authorized by the I. C. C. have been allowed and are now in effect.

Michigan. In our original bulletin the statement was made that "carriers have filed tariffs, effective August 26, making the same percentage increase in freight and passenger rates as have been allowed by the I. C. C. These will not be suspended by the commission, but are subject to later investigation, etc." Michigan has a statutory fare law, but the carriers of that state have secured an injunction against the commission from enforcing it. The application of the carriers for an increase in their passenger fares is, therefore, not yet settled. A hearing in the matter is to be held in the near future. Michigan carriers have petitioned the I. C. C. to take jurisdiction over Michigan intrastate passenger fares in accordance with the provisions of the Transportation Act.

Minnesota. Hearings in the application of the short line railroads on August 26 resulted in the authorization of increases in freight and milk and cream rates on the same basis of increase as the rates for trunk lines outlined in our bulletin of August 28.

Missouri. Commission authorized carriers to file on one day's notice, effective not prior to September 1, 1920, tariffs or supplements containing increases in passenger fares of 20 per cent, in excess baggage rates of 20 per cent, surcharge in Pullman rates of 50 per cent, in milk and cream rates of 20 per cent, and in freight rates of 35 per cent, with exceptions on coal, coke, brick, sand, gravel, stone, crushed rock, lime, cement, plaster, and petroleum products in cases where such rates were increased 70 per cent or more June 25, 1918. The commission treats matter in the nature of an emergency proceeding, and indicates that continuation of the rates increased should be conditioned upon the presentation by the carriers of more accurate data in the future. The commission denies increases at the present time upon the commodities mentioned above because they appear to have suffered unequal advances under General Order No. 28, as compared to like increases upon interstate traffic. The increases authorized are for a period of six months from September 1, and carriers are required to so maintain their records as to be able to file with the commission full details of operations in order to justify the increases.

Nebraska. A hearing was held before three judges of the federal court on August 27 on the carriers' application for an injunction restraining state officials from enforcing the two-cent fare law. The three-cent rate was continued pendente lite until a further hearing is had on September 6. It is intimated that carriers will also file a complaint with the I. C. C. under Section 13 of the act to regulate commerce raising "Shreveport" issues.

New Mexico. Commission on August 25 authorized same increases in freight and passenger fares as contained in the order of the I. C. C., except that no increase in passenger fares is authorized where such fares are now on a basis of 4 cents or more per mile. Increases in rates on coal between Carthage and San Antonio, which recently were the subject of a hearing by the commission, were denied. Exceptions were likewise made in the rate on low-grade ore between Santa Rita and Hurley, which has heretofore been advanced 25 per cent. Commission indicates that inasmuch as the New Mexico Central R. R. lies within two rate groups in which different percentage increases apply, an increase of 33 1/3 per cent instead of 35 per cent shall apply on that portion of its line between Kennedy and Torrance, and an increase of 25 per cent to that portion between Santa Fe and Kennedy. The commission conditions the increases indicated above upon the adjustment of the wages of railway employees in accordance with the scales prescribed by the Labor Board, and any carrier failing or refusing so to do is denied permission to make such increases. Increases became effective August 26.

North Carolina. Commission on August 27 authorized increases, effective fifteen days after filing of tariffs, in conformity with those authorized by the I. C. C. Inasmuch as the commission's order is granted in blanket form, and not based upon investigation in detail of the effect of the increases, it is not to be inferred that the order is final approval of such increases. The case is left open for adjustment or further correction to the same extent as if the order had not been made.

North Dakota. Commission on August 24 authorized increases of 35 per cent on present North Dakota schedule of class and commodity rates, 20 per cent in excess baggage rates, and 20 per cent in passenger rates. The case is to be kept open for further hearing for the purpose of adjusting certain discriminations and for inquiring into the reasonableness of individual class and commodity rates and passenger fares established by the commission's order. As to a surcharge on Pullman fares, which was denied, the commission said: "A surcharge on sleeping and parlor car fares does not appear to be a proper method for securing revenue, for the reason that there appears to be no separate and severable service performed by the carrier to the patron." Increased milk and cream rates were denied to permit consideration of such rates in the application of the express companies now pending.

Ohio. Commission on August 17 authorized, effective upon five days' notice, the filing of supplements to existing tariffs increasing rates not to exceed 40 per cent of existing rates. The commission reserves the right to suspend the tariffs so amended, and upon hearing upon the reasonableness of any or all of the increased rates, the burden of proof is to fall upon the carriers, as provided by the state law, as fully as if the order granting a less period than the statutory time for filing such supplements had not been made. The commission denies the application of carriers for authority to increase their charges for passenger service, for want of jurisdiction, and also denies the so-called Pullman surcharge, charges for the transportation of excess baggage, and the charges for the transportation of milk and cream.

The commissions having thus far rendered decisions in the carriers' applications to advance their intrastate rates are as follows: California, Colorado, Florida, Georgia, Idaho, Illinois, Iowa, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York (1st District), New York (2d District), North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Vermont, Virginia, Utah, Washington, West Virginia, Wisconsin, and Wyoming.

The Interstate Commerce Commission has this week announced the institution of proceedings of investigation to determine whether unreasonable discrimination against interstate commerce will result from the refusal of state railroad commissions to put in effect increases in rates corresponding to those ordered by the federal commission for interstate business, in three states, Texas, Michigan and South Carolina. This action is taken by the commission in response to petitions filed by the railroads of the states involved and a number of other similar petitions affecting other states are still before it for consideration. Hearings have already been held in respect of similar situations in Illinois and New York. The hearing in the Texas case is assigned before Attorney-Examiner Pattison at Galveston, Tex., on September 27. The Michigan hearing will be held before Commissioner Woolley at Detroit, Mich., on September 27, and the South Carolina hearing will be held before Examiner E. F. Spethmann at Charleston, S. C., on September 27.

The Canadian Railways' Rate Increase

The Board of Railway Commissioners of Canada Was Unanimous in Granting a Temporary Increase in Rates

THE TEXT of the decision granting the Canadian Railways higher rates is in part as follows:

This is an application made by the Railway Association of Canada on behalf of all the railways under the jurisdiction of this board, and consisted, first of a general application for a 30 per cent increase in all railway freight rates. Before the hearing, and as a result of the decision of what is known as the Chicago Wage Award, by which substantial increases were given to all railway employees in the United States, dating back to the first of May last, a supplementary application was made asking for a further increase of 10 per cent in all freight rates; 20 per cent in passenger fares; 50 per cent in sleeping and parlor car rates; 40 per cent in milk and 20 per cent in excess baggage.

Counsel for the Railway Association dealt with the showing of the roads other than the Canadian Pacific.

The operating ratio of the Grand Trunk for the year ending December 31, 1919, was 87.43 per cent, and for the six months ended June 30, was 99.97 per cent. For the Canadian Northern system, not including the Intercolonial or National Transcontinental, the operating ratio for the year ending December 31, 1919, was 112.08 per cent, and for the twelve months ending May 31, 1920, 117.61 per cent. According to estimates filed with the board, the result for 1920, if increased wages were granted, as hereinbefore referred to, and no increase in the traffic rates, the operating ratio would be 134.23 per cent. If the wage increase were granted as from the first of May last, and the full rate increases from the first of September, instant, the operating ratio would be 119.59 per cent, and the estimated result of operations for twelve months on the 1920 basis, with both wage and rate increases granted, would still leave an operating ratio of 105.01 per cent.

The Position of the Canadian Pacific

All the counsel, representing the opposing interests, based their case upon the financial statement of the Canadian Pacific, and practically all the evidence, outside of the financial statements above referred to, dealt only with that railway, and therefore, in arriving at a judgment, I am forced to refer almost exclusively to the condition of the Canadian Pacific in order to arrive at proper conclusions.

Mr. MacMaster, counsel for the Canadian Manufacturers' Association, as I understood him, contended that the rates should be so adjusted that the Canadian Pacific would be able to pay its dividends without drawing upon its reserves, but nothing further. Mr. Symington, counsel for Manitoba, was not quite so generous and Mr. Coyne, representing the amalgamated boards of trade of the three prairie provinces, would draw upon the reserves to some extent if necessary for the payment of dividends.

I am unable to agree with any of these contentions and much less with that of Mr. Geary because, should his doctrine be followed to its logical conclusion, in a very short time the cash reserves would be dissipated, and it would only be a question of time when this company would find itself in the position of the Grand Trunk and Canadian Northern Systems.

"Wise Business Management"

If the Canadian Pacific Railway Company has, for many years past, kept an outstanding position among transportation companies of the world, it is because, through wise business management they have been able to place themselves in such a financial position that the financial world has faith in the institution, and perhaps none of us realize the value which this financial status has been to Canada in the outside world during recent years, the most outstanding case being the loan of $40,000,000 worth of debenture stock to the Imperial Government, which was actually hypothecated in the United States for the purchase of munitions during the great war.

But, apart altogether from this phase of the question we have in the actual conditions in Canada, that about which there can be no speculation whatever. It is known, from their financial statement, that they have actually put into the road out of reserves, proceeds of land sales, etc., $130,000,000, which has probably been expended more or less in every province in Canada through which the road runs, in bettering conditions and fitting it to that extent to better serve the public as a common carrier; and, according to the evidence, during the present fiscal year, they have already expended more than $8,000,000 "out of reserves" for the construction of branch lines in western Canada. Under the present financial conditions all counsel above referred to, I think would admit that none of these branch lines would be possible during the present year if the Canadian Pacific did not have the reserve from which to draw for this purpose, but, even supposing they were able to sell securities to the public it would mean an increase of their fixed charges or dividends which would have to be met out of earnings, and every addition to capital expenditure would be a further demand for increased rates; and therefore, considering the question from every standpoint, I consider it a national necessity that the Canadian Pacific Railway at least be kept in a healthy financial condition, with the hope that, as a result, the other great railway system may be benefited in a corresponding degree.

The financial statement of the Canadian Pacific Railway for the year ending December 31, 1919, showed a surplus of $844,249. It was contended and was not denied, that should they pay the increases to their employees, based upon the Chicago award, without receiving any increase in rates, the 1920 balance sheet would show a deficit of many millions of dollars. The above mentioned award, if adopted by this company, would require an additional wage expenditure before December 31 of $14,822,300 and for the next full year nearly $22,000,000, and, if adopted by the other roads would mean the same proportion of increases.

It was strongly contended by many interests, that the Board in making its decision, should take into consideration only the financial requirements of the Canadian Pacific, and whatever deficit there should be in the operation of the Canadian National system should be borne by the country out of ordinary taxation. In replying to these contentions the representatives of the Canadian National pled most earnestly for the full increases asked for, claiming that were they granted, and they paid the wage increases above referred to, their operating ratio for the next year would be 105 per cent, and they only asked to be placed in such a position that they could run the railroad without going to the country for assistance, admitting for the present at least, that the country should take care of the fixed charges as well as the deficit which was sure to result from the operation of the Intercolonial and National Transcontinental systems.

If we give a rate which will barely allow the Canadian

Pacific to pay its fixed charges and dividends, or a lesser rate, then it is absolutely certain that the Canadian National railway system, including the Grand Trunk, Grand Trunk Pacific, Intercolonial and Transcontinental, will face an operating deficit of at least $50,000,000 per year, assuming that the wage award is adopted and including the Intercolonial and National Transcontinental and Grand Trunk Pacific systems.

In my judgment that is not in the best interests of the country, as a whole, and therefore while not attempting to grant a rate which will immediately place the Canadian National system upon a self-supporting basis, yet it should be one which will at least give its managers the hope that by wise and prudent operation this happy end may be attained, and that it may, within a reasonable time reach a position of independence without which, I fear, nothing but disaster can be the result.

Giving weight to the conditions set out in Re Western Tolls as affecting the relative levels of tolls east and west of Port William and also bearing in mind changes in conditions which have taken place, I am of the opinion that it is justifiable to allow a reasonably less percentage of increase on freight tolls west of Fort William than east thereof. Consequently, I have concluded that an increase in rates should be granted along the following lines, with the exception of the items hereinafter specially referred to.

The Increases Granted

Until December 31, 1920, I would give a general increase of 40 per cent in eastern freight rates and 35 per cent in western freight rates with 20 per cent both east and west in passenger fares; which however should not exceed four cents per mile, 50 per cent in sleeping and parlor car rates and 20 per cent on excess baggage.

Percentages to Be Later Reduced

Commencing the first day of January 1921, and until there is another revision of rates, I would reduce these percentages on freight to 35 per cent in eastern territory and to 30 per cent in western territory, with 10 per cent reduction in passenger fares up to the first day of July next, when passenger rates should come back to the basis in effect prior to the coming into force of this judgment; but continuing the full increases in parlor and sleeping car rates and excess baggage.

It will of course be understood that the percentages of increases in the rates east and west of Port Arthur herein granted will, in the case of through rates between the east and the west (excepting transcontinental commodity rates), apply to the east and west factors thereof respectively.

This will, in my opinion, very nearly give the Canadian Pacific an even balance sheet at the end of the present fiscal year, and for the year 1921, according to my estimate, should give them a reasonable surplus; but it may still leave the Canadian National system with an operating deficit.

Crushed Stone, Sand and Gravel

At the hearing I was very much impressed with the argument presented by those opposing any increase on crushed stone, sand and gravel, as, from the evidence adduced, and which was not contradicted by the railway companies, they must be making a fairly substantial profit in the transportation of these commodities; but I am arriving at this conclusion, to a very great extent, by the public necessities of Canada at the present time. Perhaps, next to the railroads nothing is more urgently required than the improvement of our highways, and any increase in the rates on the materials entering into their construction must of necessity defer this much needed improvement; in fact it was stated by Mr. McLean of the Public Works Department of the Province of Ontario, that they were now establishing in many parts of that Province crushing plants at local centres; as the rates were already greater than the traffic would bear, and therefore any increased rate would not only deprive the public of a real necessity but would probably reduce the business and consequently the profits of the railways, therefore I would give no increases in the rates on these three commodities.

Increases on Coal

Owing to the unprecedented cost of coal today and the likelihood of the same condition continuing for some time to come, I am not inclined to grant the above general increases in this commodity.

Based on the current rates I would allow the following increases, viz:

In rates 0 to 80 cents per ton, increase 10 cents.
Over 80 cents to $1.50 per ton, increase 15 cents.
Over $1.50 per ton, increase 20 cents.

In the west the minimum line haul rate is also 80 cents; but the hauls being much longer than in eastern Canada, the great bulk of the territory will take the maximum increase of 20 cents. From Lethbridge, for example, the maximum increase will operate to destinations Medicine Hat and east.

Other Freight Rates

The increase in the rates on cordwood, slabs, edgings, and mill refuse, all for use exclusively as fuel, should be limited to 10 per cent.

I would also refuse any increase in milk rates as only a few months ago this board on a special application, refused any increase on this commodity.

I also think there should be no increase in the minimum class rate scale as established by order-in-council P. C. 1863, and now in force by a recent order of this board, as well as the minimum charge per shipment.

As substantial increases were given in commutation fares by special Order of this board only a few months ago, no additional increase should be given them herein.

So far, the freight rates dealt with are those charged for line hauls. Local switching rates were materially increased by the carriers about ten months ago, and these, together with the tolls for interswitching, it is not the purpose of this judgment to increase. The same must be said of the charges for such other incidental services as Milling in transit diversion, reconsignment, stop-overs, demurrage, weighing and the like. Should the carriers feel that the existing tariffs do not fully compensate them for the services rendered, any formal applications they may make will be investigated and dealt with on their merits.

In some industries the amount of increase in the rates themselves, is a consideration secondary to the preservation of the rate relationships from the points of production. For example: the maintenance of the existing spreads between the rates from the various mills in British Columbia was urged at the hearing by the lumber interests of the province. While the principle of percentage increases must necessarily disrupt these relationships to some extent, it is considered important that in the working out of the tariffs such recognized differentials as have been referred to should be preserved so far as may be practicable, even though certain rates may result which are lower, or higher, than they would otherwise be.

Transcontinental commodity rates may be advanced correspondingly to the increases now permitted in the United States, preserving the relationship between the territorial groups of the two countries that have obtained since 1918.

As under a percentage division of joint through rates each participating carrier will receive its appropriate share of the increases herein authorized, it is necessary that those railways that in joint traffic are paid an arbitrary division

in a fixed amount, should receive a percentage of increase corresponding to the increase in the through rates.

As our jurisdiction for granting increases on certain lines of railway in western Canada depends entirely upon the amendment to section 325 of the Railway Act, 1919, which expires on July 6, 1922, the rates hereby established cannot continue beyond that date unless Parliament, extends the provisions of that section. Therefore the rates herein provided for shall not extend beyond the first day of July, 1922.

Outlaw Yardmen's Strike Collapses

THE "OUTLAW" STRIKE of yardmen and enginemen in the Chicago switching district ended on September 13. The first indications of the disintegration of the outlaw movement, which had developed into a guerilla warfare between the strikers and the men who had taken their places in the yards, came on September 12, following mass meetings at which the strikers voted overwhelmingly to return to work. For some time railroad officers in Chicago have been visited by varicus committees of the strikers who, in all cases, asked for the "best terms possible" for their return. In all of these instances the railway officers indicated to the men that they would be glad to take back as many of them as possible, and that those who displayed their former efficiency would be given every opportunity to work themselves into advantageous positions. They were told, however, that in no case, would their seniority rights, which were taken away after they had been given ample opportunity to return to work, be restored. Action such as this could not be taken without bringing the railroads into conflict with the brotherhoods which co-operated during the strike in obtaining men to man the yards.

According to the information available at Chicago, the vote on the question of returning to work was nation-wide, nevertheless it is predicted that the men in the Chicago district will return to work regardless of what is done elsewhere.

The outlaw movement, it will be recalled, started on the Chicago, Milwaukee & St. Paul on April 1, following the removal of John Grunau, a yard conductor and organizer and president of the Chicago Yardmen's Association. Members of this organization in Chicago immediately went on strike, projecting the removal of Grunau as their main grievance and at the same time presenting their demands for increased wages. The strike movement spread rapidly in Chicago and from there to many of the larger terminals throughout the country. At other points organizations similar to the Chicago Yardmen's Association were formed. In addition the strike of the yardmen was augmented by the organization of a similar outlaw organization, the United Enginemen's Association, which struck in sympathy with the yardmen. These strikes, coming as they did in a period of exceptionally heavy traffic movement, greatly interfered with transportation throughout the country. The established brotherhoods from whose ranks the outlaw organizations recruited their members, immediately aligned themselves with the railroads and by temporarily re-distributing their membership, assisted in maintaining traffic movements.

The collapse of the outlaw movement became evident when the United States Railroad Labor Board handed down its decision granting increased wages to all railroad workers on July 20. Practically, from the inception of the strike, yardworkers returned to their old positions individually and in groups and the outlaw organization's ranks were gradually depleted in this manner. From the time the reward of the Labor Board was handed down, further inroads were made in the strikers' ranks until the eventual collapse of the strike was assured.

The last development in the outlaw movement was the institution of guerilla warfare in the Chicago yards, a few details of which were described in the *Railway Age* of September 10. The vigorous opposition presented by both the railroads and the men who were taking the strikers' places put an end to this attempted reign of terror with the result that the strikers finally gave up on September 12.

The last hours of the outlaw movement were featured with uproar and comedy. John Grunau, the instigator of the movement and a few of his faithful followers, attempted to hold the men in line and insisted that the strike vote showed that the majority were in favor of remaining out. On September 14 Grunau issued a statement purporting to show that the vote in the Chicago district was 21,974 to 21,304 in favor of continuing the strike. This caused an uproar among the rank and file, who immediately demanded to know where the extra 21,000 votes came from. At no time during the strike had Grunau claimed more than 20,000 men out and, as a matter of fact in normal times there are but 6,500 yardmen employed in the Chicago district. Following this statement charges of bribery, trickery, stuffed ballot boxes and intimidation were voiced. Subsequently the men called meetings of their own in various sections of the city on the evening of September 14 and by *viva voce* votes left no doubt as to the desire of the men to return to work.

Upkeep of Freight Car Equipment

AT A MEETING of the Central Railway Club, held at the Hotel Statler, Buffalo, N. Y., on September 10, J. W. Senger, superintendent of rolling stock of the New York Central, Lines West, presented a paper on Upkeep of Freight Equipment. The author stated that the roads are now facing a bigger problem in maintaining freight cars than that encountered during the war, due to the shortage of labor and material, the increased traffic and the scarcity of equipment. To meet this situation he urged that the facilities for repairs, which have not kept pace with the increase in equipment, should be augmented as quickly as possible.

Discussing the organization of the car repair forces Mr. Senger advocated a limited scope of responsibility for each foreman, the selection of supervisors from the ranks, and periodical educational meetings. He mentioned methods for overcoming the difficult material situation, which included careful attention to the use of material, co-operation between the mechanical and stores departments and the reclamation of material from scrap. He also pointed out the advisability of considering reinforcing cars when undergoing heavy repairs and avoiding making light repairs when the condition warrants a general overhauling. By giving proper attention to cars in classification yards and on light repair tracks the delays and expense incident to setting out cars en route could be avoided.

In concluding Mr. Senger said: "The demand that has been made upon the equipment department by the operating department of the railroad, due to the necessity for car equipment suitable for transportation purposes, has tended to make it necessary to use all classes of equipment to the maximum. We have been called upon to supply cars, not for the commodities for which they were originally built, but for other classes of service for which they could be fitted by temporary repairs. As a consequence we now find ourselves with equipment on hand which will require some time to build up to its former usefulness, and this cannot be very well accomplished unless all railroads provide themselves with newly constructed equipment which can be placed in service to relieve equipment now running, to enable the cars to be brought into the shop and receive general repairs

or overhauling which will fit them for the service for which they were originally built."

A spirited discussion followed the reading of the paper. Numerous details of construction which affect the cost of maintenance were mentioned. Some of the speakers deplored the tendency to confine the work done principally to light repairs. The fact was pointed out that some roads have not provided adequate facilities and therefore are not doing their share in maintaining cars. Damage to cars in switching also received attention. The statement was made that cars often come together at speeds of six to eight miles an hour, though the highest capacity draft gears now in use will not protect loaded cars from destructive shocks if the speed at impact exceeds four miles an hour. One speaker expressed the opinion that local agreements which contained the provision that the receiving company should run, repair or transfer the car were responsible for keeping cars in service when they should be repaired and urged that the receiving line should in all cases have authority to reject cars in unfit condition.

Cars Must Be Equipped With Safety Appliances

THE INTERSTATE COMMERCE COMMISSION has denied the application of the American Railroad Association on behalf of various railroad companies for a further extension of time within which to make their freight-train cars conform to certain of the standards of equipment prescribed by the commission pursuant to the provisions and requirements of the safety appliance acts.

In accordance with the authority conferred by the provisions of the act the commission had granted successive extensions of the period within which common carriers should comply with the requirements of its order of March 13, 1911, with respect to the equipment of cars actually in service on July 1, 1911, as follows: On March 13, 1911, an extension from July 1, 1911, to July 1, 1916; on November 2, 1915, a further extension to July 1, 1917; on April 12, 1917, a further extension to March 1, 1918; on February 1, 1918, a further extension to September 1, 1919; and on August 29, 1919, a further extension to March 1, 1920, making one continuous period of eight years and eight months from July 1, 1911, to March 1, 1920. Passenger-train cars and locomotives were equipped in conformity with the standards within the periods prescribed by the first extension order. The second, third, fourth, and fifth extension orders pertained to paragraphs b, c, e, and f of the original extension order, paragraphs a, d, and g being so worded as to require no further action.

"The record shows," the commission says in its decision, "that on February 1, 1920, there were 2,319,380 freight cars owned by the carriers represented at the hearing, and that 60,170 of these, or 2.6 per cent of the total owned, were not equipped in conformity with the standards prescribed by the order of March 13, 1911. It is estimated that 3,000 were equipped during the month of February, and that 12,021, or 20 per cent, were special service cars or other cars which do not leave the line of the owning carrier.

No reason was given why these 12,021 special service cars have not been equipped in conformity with the law or why they can not immediately be so equipped. This leaves 45,149 other cars to be equipped. Sixty per cent of them need minor repairs only, but more or less difficulty is involved in equipping the remaining 18,060. Of these, 9,272 have less than 10 inches end-ladder clearance. If a special draft gear is used, the larger percentage of the 9,272 cars can be made to conform to the requirements. The number of bad-order cars on the lines of these carriers is about 138,000, or approximately 6.5 per cent of the total number owned. The percentage of the number of bad-order cars has fluctuated during the last two or three years between a little over 5 and about 10 per cent. Most, if not all, of these non-equipped cars have been through the shops in the last 9 or 10 years. A witness for the carriers stated that he did not know that any freight car could stay out of the shop that long.

"It can not be maintained that the failure to have these cars equipped in conformity with the standards is due to any unforeseen contingency. The requirement for the standardization of safety-appliance equipment is of long standing, and attention has been directed to this requirement from time to time in previous hearings in this matter as well as in the several extension orders; at the hearing in August, 1919, the situation was discussed and the understanding was had that no further extension would be necessary, asked, or granted. The arguments that shortage of material and absence of the cars from the lines of the owning carriers have delayed the required standardization are not convincing with respect to those cars which require only minor repairs, inasmuch as safety appliances are of standard dimensions and an order issued by the Railroad Administration June 30, 1919, required each carrier to equip all cars on its line not already standardized, regardless of ownership. We have seen that it will be more or less difficult to make 18,060 cars conform to the standards. But if these 18,060 cars are added to the number of bad-order cars, shown by the record to exist on the lines of the carriers, the percentage of bad-order cars will be increased less than 1 per cent, or from 6.5 to 7.3 per cent; and if the entire 60,000 cars not equipped according to standard were added to the number of bad-order cars the percentage of such cars would be increased to 9.2 per cent, a figure less than the maximum, which, according to the record, has existed during the past two or three years.

"It is noted that all of the unstandardized cars referred to herein were in service July 1, 1911, and all of them are consequently 9 or more years old. No doubt many of these cars have practically outlived their usefulness and nearly reached the age of retirement. Cars of that age, if they have not heretofore been shopped for extensive repair work, must shortly go through the shops, at which time the safety-appliance equipment can and must be made to conform to the standards.

"We have been very liberal in the past in granting successive extensions of time; in previous hearings on this subject, we have been convinced that good cause was shown for the extensions granted, notwithstanding that representatives of train-service employees in every case have opposed any further extension of time. We are not unmindful of the fact that the primary purpose of the safety-appliance law and standards is to reduce the hazard of employment, and that extension of time within which carriers are required to comply with the standards delays the consummation of the beneficent purposes of the law. The hazard to employees does not diminish in the same proportion as the number of cars which are not standardized diminishes. The employees expect all safety-appliance equipment they are required to use to be standard, and when a car on which the equipment is not standard is used the fact frequently is not discovered by employees until after an injury has resulted.

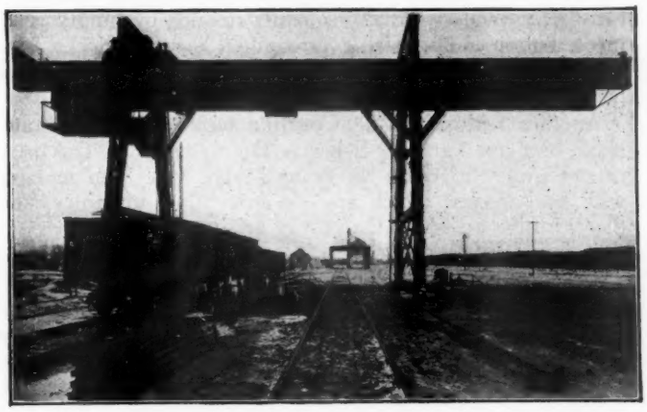
"Upon consideration of all the facts of record we are of opinion and find that good cause has not been shown for any further extension of the period of compliance and that serious burden or hardship will not be imposed upon the carriers or upon the public by denying the application in this case."

Saving Money and Time at Engine Terminals

Much Has Been Gained Through Standardization of Electrical Distribution and Equipment Properly Installed

By H. L. Cornelison
Electrical Equipment Engineer, Austin Company, Cleveland, Ohio.

THE RECENT STANDARDIZATION of electrical distribution for both light and power at several new engine terminals on the Pennsylvania System has resulted in a reduction in the cost of engineering and construction of these facilities. The employees adapt themselves to the equipment with comparative ease, and when they are transferred from



Gantry Crane for Handling Ashes at Cinder Pits

one terminal to another they are already familiar with the workings of the standard layout. The scheme of electrical distribution as worked out for a 30-stall standard engine house is illustrated by the Crestline, Ohio, terminal. The engineering for the standardization of the lay-out was conducted by the engineers of the railway under the direction of R. Trimble, assistant chief engineer of the Pennsylvania System; while the construction of the terminal and the installation of electrical service was done by the Austin Company, Cleveland, Ohio.

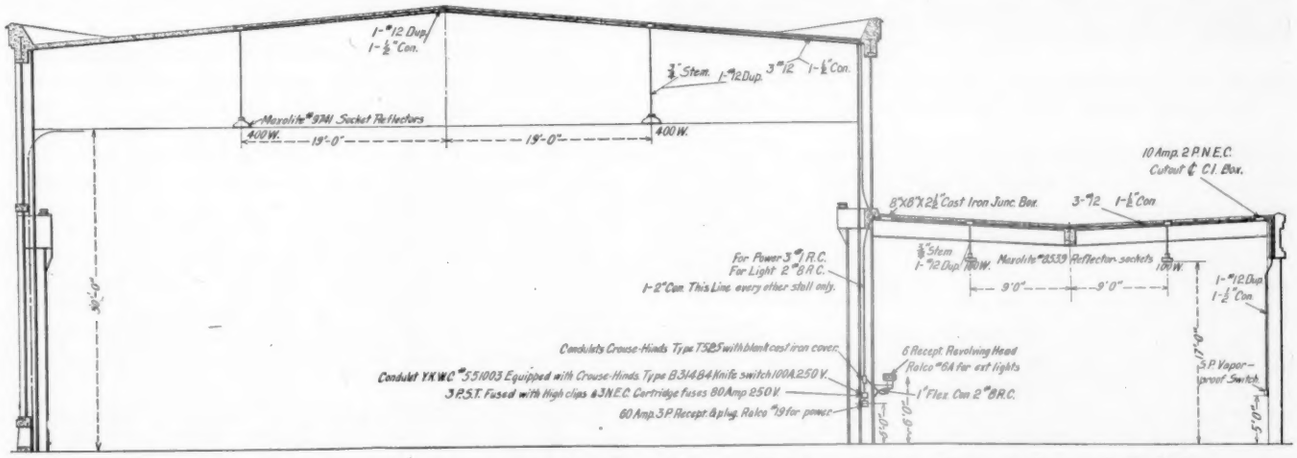
Power, Service and Distribution

At this terminal the railroad purchases electric power from a local power company, 60-cycle alternating current being supplied. This is distributed through the terminal to the various local distributing points at 2,200 volts.

It is the custom of the Pennsylvania to purchase its own transformers and measure the current consumed through meters connected to the receiving side of the transformers. The receiving voltage varies for different locations and ranges from 2,200 to 66,000 volts, the latter being the pressure at which the current is supplied at the Crestline terminal. In this case a substation of the out-door type is provided with the necessary arrangement of transformers, safety devices and other equipment for stepping down the voltage to 2,200. At this pressure it is distributed through the yards and to the various buildings. If current is received from the power company at 2,200 volts this out-door substation is not required.

In general there are three classes of distribution and each is separately controlled at the 2,200-volt switchboard. These are, (1) current for all power purposes, (2) current for interior lighting, and (3) current for all exterior yard lighting. The various loads are supplied with energy from the same source. The standard protective equipment for the out-door substation includes automatic releases, oil circuit breakers, and aluminum cell lighting arresters, together with auxiliary apparatus such as current and potential transformers, and disconnecting switches.

The service line panel on the main switchboard, which is located in the compressor room of the engine terminal power house, carries a watt-hour demand meter and other instruments. The distributing panels are equipped with oil switches on the feeder lines and each switch is provided with an overload release. In addition, the power circuit breakers have a low voltage release as a precaution against damage in case full voltage is restored after partial or complete interruption has occurred in the current supply.



Cross-Section of Engine House Stall Showing Location of Lighting Outlets, Receptacles and Switches

To facilitate the making of connections and to avoid the crossing of wires behind the switchboard, a vault is built below the floor level, in which the feeder lines terminate. From this vault the underground circuits are taken out to the terminal poles near the power house, then up the poles

to cross arms, where connections are made to the overhead distributing system, which in general is the method of distribution employed. The poles are set in concrete in order to further the permanence of the line construction. However, where congestion prevails the circuits are placed in underground conduits. This is the practice wherever a track crossing is encountered.

The distribution for the various buildings, such as office building, power house, oil house, storage building, machine shop and inspection pits, is effected by placing 2,200-volt transformers at the approximate load centers. At these locations the 2,200-volt service is reduced to the required amount for power and lighting purposes.

Application of Power

At each of the new engine terminals a steam generating plant is maintained for the purpose of heating the buildings, operating the boiler washing system, etc., the heating being done by the indirect hot air method. The fans for blowing the air over the heating coils are steam driven, as is the usual standard practice. All other apparatus is electrically driven. This includes the blowers, where forced draft is used, the ash handling equipment, the exhaust fans

Engine House During Construction. The Conduits for the Overhead Lights Are Embedded in the Roof Slabs

for the down-take system of smoke collection in type "A" engine houses, as at Crestline, and the air compressor as well as machine tools, cranes, turntables, etc. All motors are of induction type, operating at 220 volts, with the exception of the smoke exhaust fans, which are 2,200 volt, and also the 2,200-volt synchronous motors which drive the air compressors.

The power house at Crestline, comprises in addition to the boiler room, the heater fan room, the smoke exhaust fan room, the boiler washing equipment room, an electrical repair room and the air compressor room, the latter being used also for the main switchboard room for the control panels of the electrical distributing system of the plant. Just outside the boiler room and immediately adjacent to the compressor room is the out-door substation with concrete base on which are mounted the master transformers and other equipment mentioned in a previous paragraph. In the engine house the motor-driven apparatus consists of the overhead traveling crane, which is a feature of the type "A" house, the drop pit mechanism, the turntable tractor, the electric welding apparatus and such portable tools as may be required.

The scheme of power transmission to the crane motors is a matter in interest in that, since the crane operates on a circular track the usual form of trolley wire is not suitable because of its making tangents between points of support.

On this account three 30-lb. rails have been substituted. These are supported one above the other and bent to the contour of the inner crane supporting rail. They are suspended from the frame work by means of insulating rackets. The collectors on the crane make contact with the rail bases on the underside.

For portable tools a single receptacle is mounted on each second column. From these also are operated the portable electric welding outfits, which consist of 220-volt alternating current motors driving direct current welding generators. The motor equipment at the coal docks is of the same general character as elsewhere. An important feature, however, is the control apparatus, whereby the machinery is automatically set in motion and subsequently stopped by simply pushing a button. The wiring throughout the coal docks is in rigid steel conduit with cast iron fittings to make the work permanent and secure.

Another feature of the Crestline terminal is the gantry crane used for handling ashes at the cinder pit. The usual copper trolley wires on the crane bridge have been replaced with steel shapes, which are less susceptible to injury from the corrosive action of the vapors arising from the pits.

Illumination of Engine Terminal

Incandescent lamps are used for all interior illumination; these are mounted in porcelain enameled steel reflectors, which are of the diffusing type for general interior illumination, while for local use at machines or on extension cords reflectors of the intensifying type are provided. For each stall in the type "A" enginehouse there are two 400-watt lamps suspended from the roof truss in the high bay and two 100-watt fixtures suspended from the roof in the low bay.

For portable lights, conduits are led down the main roof supporting columns, terminating in turret fixtures, in each of which are receptacles for six separate extension cords. In the machine shop provision is made for such special lighting, in addition to the general illumination, as the work in hand may require.

Exterior illumination is effected by means of flood lighting. For the turntable this involves the use of a fixture for each quarter circle mounted on towers on the roundhouse roof in such a manner as to elevate them to a height of 35 ft. above the track. Opposing lights are focused one against the other, so as to avoid shadows. Yard illumination is provided by flood lights of the similar type mounted in cast iron housings. These are placed in groups on poles at an elevation of 65 ft. above ground level. No fixed rules for pole location have been adhered to, the arrangement being in accordance with local requirements and preference. In this case also, the opposing lighting units are focused one against the other in such a manner as to reduce glare and shadows.

Special care has been taken in wiring the oil house to have all circuits tightly sealed in conduits, so as to diminish the fire hazard from short circuits and sparks. The controlling switches and panel boards are mounted outside of the building for the same reason. This also provides greater accessibility in case of emergency. In addition to the Crestline yard project, a number of other terminals have been constructed along the lines described in this article. Among the larger ones may be mentioned the new engine terminal and yard at Richmond, Ind., and remodeling of the old engine house and the building of a new locomotive erecting and machine shop at Logansport, Ind.

General Foremen's Association Convention

Keen Interest Developed in the Discussion of Organization Problems and Handling of Labor

THE RELATION of supervision, adequate machinery and facilities, proper handling of labor, and the fusion welding processes to the reduction in the cost of repairs to cars and locomotives were the subjects developing the liveliest discussion at the sixteenth annual convention of the International Railway General Foremen's Association, which was held at the Hotel Sherman, Chicago, September 7, 8, 9, and 10.

The convention was called to order by President William P. Gale (Chicago & North Western) and, following the usual opening exercises, President Gale addressed the association. An abstract of his remarks follows:

President Gale's Address

Much might be said as to ways in which improvements in railroad transportation may be made. Government control of the railroads in the United States having now ceased to exist, it is natural that the railroad companies should desire to return to improved pre-war conditions. There is a demand for earnest effort at increasing the production of essentials and the markets of the world are ready for our country's products. As foremen in railroad shops we must do our full part in helping to get results. It may be considered a patriotic duty to serve the country in providing efficient and economical transportation for its citizens and products.

In the supervision of employees, foremen can get the best results by dealing kindly but firmly with all men under their charge. Foremen should not be led astray by any false impressions of their personal importance, but must rather be filled with the spirit of fairness to all. The interest of their employers can best be served by a proper understanding not only of the materials which they must handle, but also by securing the effective co-operation of all employees under their supervision. The part of the program pertaining to the proper handling of labor should be fully discussed.

Reducing the Cost of Repairs to Cars and Locomotives

The committee dealt with this subject under 17 heads, each of which was outlined briefly with the purpose of stimulating discussion. An abstract of these subdivisions follows:

SUPERVISION

Careful, well trained supervision is essential. Supervisors should have, or acquire, executive ability—the gift of handling men properly; they should be interested in their men and like them. They should be big enough to get their heads and shoulders above the petty envy and jealousy that has a habit of creeping in. Supervisors who are favored with the opportunity to get a schooling in different departments or experience in different shops are indeed fortunate, and can and do return the favor to the company they are working for.

Should employees be promoted to supervisory positions without previous careful training and coaching when their work and actions mean so much to their employers?

ORGANIZATION OF SUPERVISORS AND SHOP FORCES

In order to have an efficient, energetic and interested shop organization it is necessary to have the co-operation of all members of the staff. To increase this spirit it is advisable to have weekly shop staff meetings at which the welfare of the shop is discussed. At these meetings the shop superintendent or general foreman can get in personal touch with his organization and get a general idea of the condition of each department by the report that each department foreman turns in. This enables him to make any changes which he might deem necessary to further the production in his shop.

At these meetings, too, subjects may be brought up for general discussion, such as general shop conditions or methods to be adopted to shorten the time of machine or erecting floor operations, which tend to decrease the cost of repairs.

ROUNDHOUSE REPAIRS

The first object should be to take care of the small repairs on locomotives, which will take only a short time and require a small amount of material, before they cause damage which will require more costly repairs. Roundhouse work properly looked after keeps locomotives out of the back shop a much longer time.

Roundhouse terminals should be provided with inspection pits for inspecting locomotives before passing over the ash pits in order to detect any parts that need repairs and have the information forwarded in advance to the roundhouse so advance preparation can be made for repairs.

BACK SHOP SCHEDULE

There must be a workable shop schedule or plan for getting the work out with the facilities contained in the shop. Since the piecework and bonus systems have been discarded it has been found that production has slowed up, much to the dissatisfaction of all of us. It has, therefore, been necessary to develop a shop scheduling system to take the place of the other systems.

MACHINERY AND FACILITIES

When it is possible to get new machines or appliances to replace old types they should be obtained immediately, but when this is not possible every loose end should be gathered in and the best made of the situation. There is more money wasted in making repairs to locomotives on account of the use of old and obsolete machinery than there is from any other cause. This is also true on mill work in the car department.

During the past few years locomotives have been growing in size and weight very rapidly but in many cases the repair shops have not kept pace with them and the result is high costs of repairs.

There is also another means by which the cost of repairs may be materially reduced and that is by the introduction on the machine floor of jigs, chucks, dies, box tools for brass work, pneumatic clamps, gang tools, milling cutters, templates and expanding mandrels, all of which reduce the cost of machine operations. On the erecting floors, power driven valve setting rollers, motor driven valve bushing pulling bars, rings for grinding cylinder faces and cylinder heads with air motor attachment, motor driven flue cutters and flue rollers and chucks for grinding steap pipe rings and superheater units with motors have been found to greatly reduce the costs of repairs.

ROUTING AND LOCATION OF FACILITIES

All work going through shops should be properly routed, thereby doing away with unnecessary handling, which costs money. For examples, all side rod work should be confined to one portion of the shop with rod rack, drill press, power press and lathe in close proximity to one another so that there will be no lost time between the several operations on

the different machines. The driving box gang should have the power press, brass crucible for pouring hub liners, planer, boring mill, lathe and shaper within a radius of 10 or 12 ft., as they are in so many shops, so that when a driving box enters that radius it does not get away from it until finished and ready for application.

Material

Sometimes very little attention is given to the handling of material. A high rated mechanic may sometimes be seen pushing a truck up from the stores department with a load of material on which he is about to perform some kind of work.

This task should be taken care of by a trucker or laborer, thereby saving the difference in the two men's wages while at the same time the mechanic may be used on production.

Every effort should be made to have material placed in well regulated store departments so that when men are sent for certain articles they do not waste unnecessary time looking for it.

The material required at the shops should be carefully watched by the supervisory forces and ordered in ample time to save delay and avoid the necessity of having to rob material from one engine or car for repair parts to use on another engine or car. Supervisory forces should keep in close touch with the consumption of material and should see that new material is not used unnecessarily, and that all second-hand serviceable material is handled properly to get the greatest amount of service out of it.

A well organized and well equipped central reclaiming plant is a great money saver.

Proper Handling of Labor

Every employee should be impressed with the necessity of reducing all unnecessary expenses. A great many men are inclined to be careless about the use of material, especially when somebody else is buying it, and consequently, unless a strict check is kept, much of it is wasted.

To get the men thinking along the right line some roads have arranged to have efficiency meetings in the offices of the master mechanic, between representatives of the shop crafts and the members of the staff about once each month, at which the subject of shop repairs, use of material and the elimination of waste is discussed. These men take part in the discussion and advance many ideas from the employees' viewpoint which save time and material. Then once in eight or ten weeks a mass meeting is called in the shop 30 minutes before quitting time at which some member of the staff speaks, followed by a representative of the employees who bring before the men the necessity for conserving material and thereby causing reduction in the cost of repairs.

A spirit of hearty co-operation should be cultivated between the engine crews, road foremen, and shop forces in order to get the help of the engine crews in carefully handling and looking after the engines on the road and making their work reports as explicit as possible.

Workmanship

Another manner in which the shop organization can keep the cost repairs down is to insist upon each man doing his work thoroughly, instead of accepting slighted work, which is sometimes done because the engine is wanted in a hurry. This is a very expensive measure because it will not be very long before the job will have to be done over again, at the same expense if not more.

When cars and engines are shopped for general repairs, all parts should be carefully inspected and necessary repairs should be carefully and properly made. They should leave the shop in first-class condition, to render satisfactory service without it being necessary to expend much on them for running repairs. Running repairs are more expensive than back shop repairs because facilities are lacking. Furthermore the service of the engine is lost while such repairs are being made.

Close care should be given to the proper mounting of car and tender wheels on axles to see that they are properly centered and the wheel gage fits properly at least at three equally distant points on the circumference, and that wheels of same tape sizes are paired. This will tend to reduce flange wear and hot boxes.

Welding Processes

A great saving in material is effected by the use of the electric welding process. Locomotive parts which formerly had to be scrapped on account of wear, such as guide bars, brake beam ends, brake hanger pins, radius bar ends, fork ends of eccentric rods which have become too wide for the link, driving boxes which have been worn down on the shoe and wedge faces, are now built up by the use of the electric arc and made almost as good as new. The oxy-acetylene torch, in the boiler department especially, is being used quite extensively for the welding in of flues, flue sheets, side sheets and patches, thereby reducing the cost over the old method of applying the same with rivets. The use of the cutting torch must not be lost sight of. There is no department which can get more results from it than the locomotive department.

Lubrication

The lubrication of the end play on driving, engine truck and trailer boxes, and shoes and wedges with graphite grease prevents the cutting of these faces and increases mileage.

Care should be used to see that the lubricating devices are maintained in good condition and that sufficient amount of lubricating oils are furnished to meet the requirements. Under the present conditions the proper lubrication of cars and engines depends to a large extent on the shop forces. The supervisory officials should realize this and provide necessary facilities for properly lubricating and looking after the parts in the shops that are not ordinarily given the required attention on the road.

A trained force of men should be maintained to look after the proper packing and lubrication of journal bearings and this work should be followed up by the supervisory forces to insure that it is being handled properly at all times.

Design

Great care should be given to the design of parts to see that they are of sufficient strength and of proper quality to meet the requirements of the service without failing; also to see that the parts on cars, especially, are so designed that they may be easily removed for repairs.

Reinforcing Cars

Draft timbers and gears on wooden cars are the source of high cost of maintenance. The substitution of steel center sills, to which the draft gear is attached, will almost entirely eliminate the maintenance of draft timbers and draft rigging as it gives a substantial attachment to pull the train and also gives a buffing member which will prevent buckling of cars and, in box cars, the breaking of side plates over side doors.

This feature in present-day heavy trains will more than offset any additional cost of repairs to cars and will have them on the repair track less frequently. Another feature of importance is taking care of the breaking out of ends of box cars.

This can be done by substitution of pressed steel ends, of which there are several kinds on the market, and reinforcing the ends with structural shapes which can be anchored to the side framing, floor framing and sometimes to the roof framing.

Inspection

A system of careful inspection should be enforced to detect any defects which may develop that would result in failure or rapid deterioration of parts if not located and given prompt attention.

Cleanliness

Engines should be kept clean and of good appearance as both enginemen and shop forces will take more interest in the engines if they are kept clean. This should be followed up by the supervisors and necessary facilities provided to handle the work economically.

Shops and premises should be kept clean and all refuse and material picked up. This raises the morale of the men.

Short Tracks in Car Repair Shops

It is necessary to have short tracks of 10 or 12 cars capacity, and many of them, in order to get bad order cars spotted with regard to the work to be done on them. Short tracks will also aid in more frequent pulling of the bad order tracks and not hold up a large number of cars as is done on long repair tracks. The repair forces can be better supervised with short tracks and material is more easily handled.

Classification of Bad Order Cars

Bad order cars should be classified as to light, heavy, general repairs and steel work or other special work before they are set on the repair track. This method increases the output, allows the work to be specialized and reduces the cost of handling material.

The report was signed by C. F. Baumann (C. & N. W.), chairman, C. W. Adams (M. C.), H. T. Cromwell and F. L. Wysong.

Discussion

As a means of broadening the experience of supervisors, the discussion indicated that many railroads have adopted the policy of sending groups of their foremen from time to time to visit the principal shops of other railroads. Where this practice has been followed the opinions expressed in every case indicated that the return to the company justified the practice. The value of reading suitable mechanical journals was also mentioned as a means of education which should not be neglected.

The opinion was also expressed that a real foreman requires qualifications which he possesses before he becomes a mechanic. In selecting foremen thought should be given long before the actual selection must be made and those men who have demonstrated qualifications of leadership should be tried out in positions as acting foremen whenever opportunity offers, in advance of their selection to fill permanent positions. The importance of unselfishness as a qualification for successful foremen was emphasized.

The discussion indicated that shop scheduling is rapidly coming into general use. The systems described by those taking part in the discussion varied considerably in the details. Most of them, however, depended on periodical conferences of the shop foremen as a means of fixing the outgoing dates which, once established, are followed up consistently by means of schedule boards and some form of daily reports.

The need of close supervision of speeds, feed and depth of cuts on machine tool work was brought out as particularly important at this time in efforts to secure adequate output. Many of the men on machines now seem to have little idea as to the capacity of high speed steel cutters and show little ability to figure out correct speeds and feeds. The tendency, therefore is to take more cuts than are necessary and operate at speeds which waste time. The discussion on workmanship dwelt largely with the importance of eliminating all unnecessary finishing of parts. Since the abolishment of premium and piece-work systems, where these were formerly in force, there has been a tendency for the men to do unnecessary work. In some cases this has been remedied by taking the matter up through the shop committees in a businesslike manner and impressing on them the need to avoid every possible waste of time.

During the discussion on the welding processes, Professor A. S. Kinsey, Stevens Institute of Technology, addressed the association as a representative of the Welding Conference Committee of the American Welding Society. Professor Kinsey dwelt on the importance of foremen having a more thorough knowledge of the essentials of good fusion welding. He referred to the fact that the Boiler Code Committee of the American Society of Mechanical Engineers will probably give a rating to fusion welds in boiler work and that the rating to be given will depend upon the kind of work that is being turned out. The foreman should know what kind of welds he is getting. Professor Kinsey referred particularly to the National Agreement as a hindrance to the full development of the possibility of fusion welding in railroad shops, since it places the welding jobs open to the senior craftsmen in the various departments, who may not be welders at all.

With discussions of the sections of the paper dealing with car maintenance the present practice of maintenance, which goes on patching up the cars while giving no systematic attention to the draft gears, was condemned. It was stated that the same need exists for periodical inspection and repair of draft gears as has led to the present methods of air brake maintenance, and more recently to the periodical inspection and repacking of journal boxes. It was pointed out that such a policy adopted with respect to draft gears would soon demonstrate what gears are most economical. The value of the short repair tracks of 10 to 14 cars capacity was endorsed by the car men present.

Other Papers and Addresses

Committee reports were also presented on Standardization of Engine Failures and Terminal Delays, and Methods of Repairing Superheater Units.

In addition to the address of Robert Quayle, an abstract of which appeared in last week's issue, the association was addressed by T. H. Goodnow, superintendent car department, Chicago & North Western and E. W. Pratt, formerly assistant superintendent motive power of the Chicago & North Western. Mr. Pratt commented on the fact that in looking over the program most of the subjects for discussion dealt with apparatus and were of a technical nature, but there probably was not one man in 10 in the organization who did not get his job as a general foreman because of his ability to handle men. Mr. Pratt suggested, therefore, that more attention to subjects dealing with the handling of labor and shop organization might be taken up to advantage.

Other Business

The following officers were elected to serve for the ensuing year: J. B. Wright (H. V.), president; G. H. Logan (C. & N. W.), first vice-president; H. E. Warner (N. Y. C.), second vice-president; T. J. Mullin (L. E. & W.), third vice-president; C. A. Barnes (B. R. of Chicago), fourth vice-president, and William Hall (C. & N. W.), secretary-treasurer. M. H. Westbroke (Grand Trunk Western) and C. W. Adams (M. C.) were elected to fill vacancies on the executive committee.

Fire prevention day, October 9, has been made the subject of a proclamation by the President of the United States, in which the governors of all the states are urged to set apart this day and to call on citizens to plan for instructive and educational exercises.

New England Roads Ask Larger Divisions

WASHINGTON, D. C.

AN INTERESTING TEST of the possibilities of the Transportation Act in taking care of the so-called weaker railroads, or groups of roads, which for one reason or another are unable to operate successfully on the general scale of rates prescribed by the Interstate Commerce Commission, for the district of which they are a part, has been instituted by the New England railroads that have filed a formal complaint with the Interstate Commerce Commission asking it to accord them larger divisions of the joint rates to and from other parts of the country. The complaint is signed by the Bangor & Aroostook, Boston & Maine, Central Vermont, Maine Central, New York, New Haven & Hartford, Central New England and Rutland railroads and various subsidiaries, and names as defendants all the other railroads in the country, including the Boston & Albany, the Grand Trunk and the Canadian Pacific, whose interests are more largely outside of New England.

The complaint takes the position that these roads are entitled to an annual net railway operating income of $50,296,485, which is 6 per cent on an aggregate property investment account of $838,274,759, and states that from a careful study of the best information available and on the basis of current costs and revenues, it is estimated that the operations of the complainants for the year ending August 31, 1921, under the new rates prescribed by the commission, will yield an aggregate net railway operating income of less than $14,000,000, or approximately $36,000,000 less than the 6 per cent return and approximately $18,000,000 less than the amount necessary to meet fixed charges. It is also asserted that the commission's rate decision, allowing the railroads of the Eastern district a 40 per cent increase in freight rates, will give the railroads of the Eastern district $25,000,000 in revenue in excess of what they would have received if the complaining roads had not been grouped for rate-making purposes with other railroads in Official Classification territory.

The filing of this complaint follows a series of conferences held for the purpose of ascertaining whether it would be possible to give the New England roads larger divisions by mutual agreement. The complaints state that during the past four months they have urged upon the most directly interested defendants their rights to a more favorable readjustment of divisions of joint through rates, but have been unable to secure any action on the part of the defendants toward that end. They allege that the divisions received have become and are unjust, unreasonable, inequitable, unduly prejudicial and otherwise in violation of paragraph 4 of Section 1 and paragraph 6 of Section 15 of the interstate commerce act.

One of the most serious questions raised while the Transportation Act was under consideration in Congress was as to the method of taking care of the so-called weaker railroads and the difficulty in finding a solution to this problem was one of the motives impelling the suggestions that were made in some quarters for a fixed government guarantee. The Cummins-Esch bill attempted to meet the problem presented by the existence of differences in the prosperity of various railroads by providing for a general standard of rate-making to produce a standard return on the aggregate property value by districts and also providing that roads which earn in excess of 6 per cent shall contribute part of the excess to the government.

It was well understood, however, that this plan was calculated rather to prevent the more prosperous companies from receiving an income which would be regarded as excessive than to take care of the roads which were below the average in earning capacity. An attempt was made to do something in the direction of a solution of this problem by giving the Interstate Commerce Commission power to determine the equitable divisions of joint rates, although its power was so qualified by the statement of certain considerations which must influence the commission's decision that there have been differences of opinion as to how far the commission can go in improving the condition of a road through increasing its divisions. Undoubtedly many members of Congress thought that the commission's discretion had been made broad enough to enable it to go a long way toward equalizing the earning capacity of various railroads.

The commission itself in its decision in the advance rate case said that "while the New England carriers are included in the Eastern group and are subject to the percentage for that group, the evidence as to the disproportionate needs of the New England lines makes it desirable that the railroads give careful consideration to the division of joint rates accruing to those lines."

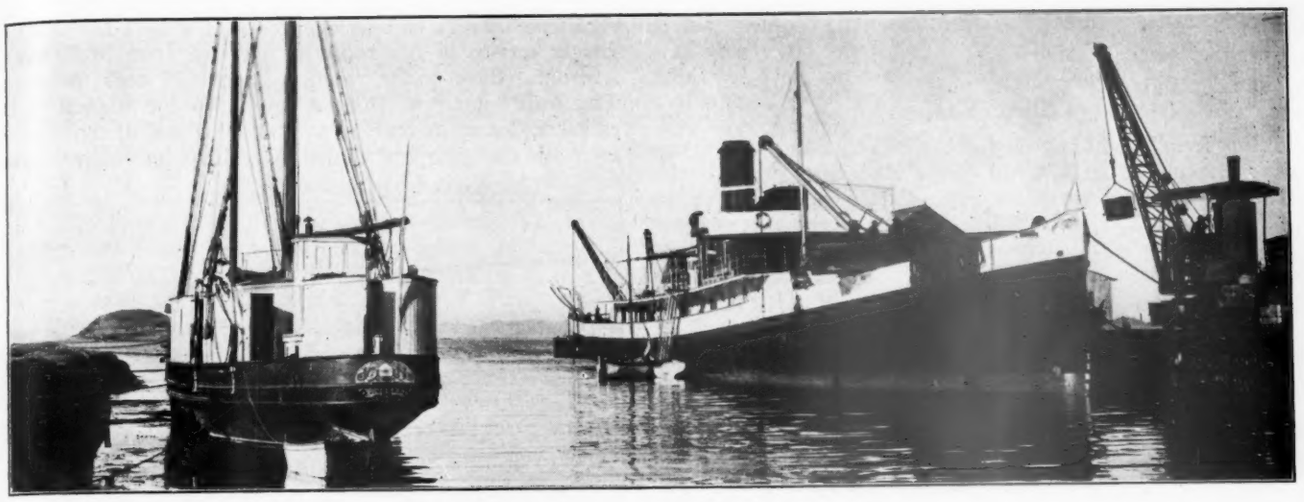
The complaint filed by the New England carriers does not indicate how much of an increase in divisions they think the commission should make; they merely refer to the paragraphs of the law requiring railroads to establish through routes, just and reasonable joint rates, and equitable divisions thereof, and requiring the commission in the event the railroads are unable to agree upon divisions to say what would be an equitable distribution of the joint revenue as between the participating carriers. The commission is asked to issue an order prescribing equitable divisions of all joint rates and charges.

In the three-year test period ending June 30, 1917, the railroads parties to the complaint had an average annual net operating income of $35,175,077. During the 26 months of federal control the average annual net operating income was only $4,477,989 and during the six months immediately following the conclusion of federal control they had a net operating deficit estimated at $13,500,000.

In urging the need for larger divisions they referred to the peculiar geographic industrial and economic conditions affecting railway transportation in New England and particularly to the fact that these roads are to an unusual degree originating and terminal lines, by reason of which they allege that their unit operating costs are necessarily higher than those of the railroads in Eastern territory generally. These higher unit costs, they say, are not now properly reflected in the divisions of the joint rates.

The complaint also says that the transportation service performed by the New England roads is of vital importance to that territory and to the country at large "due in part to the fact that the location of the territory makes it of strategic military importance, its industries have demonstrated a special adaptability for the production of munitions of war, the production of its soil and forests are consumed in large quantities in other sections, and that within New England is manufactured a great volume of commodities necessary to the welfare of the country and depending upon the service of the complainants for prompt and efficient distribution."

THE ADVANCED FREIGHT and passenger rates recently authorized by the Interstate Commerce Commission will result in a substantial increase in the tax returns to those states which tax the gross earnings of their steam railroads, according to N. A. Nelson, secretary of the Minnesota State Tax Commission, who announced recently that a tax of $3,668,710 for the first six months of 1920 was collected from the railroads operating in Minnesota, as compared with $3,356,583 for the corresponding period of 1919. The gross earnings during this period increased from $67,631,070 to $73,374,180, or an increase of $5,743,109.



Steamer Inca at the Puno Wharf—Southern Railway Steam Crane at Work Coaling the Ship

The American Equipped British Railways of Peru

This Is the Fourth Article of the Series by Railway Age's South American Correspondent

By John P. Risque

THE MECHANICAL PROBLEMS of the Southern Railway of Peru are handled at Arequipa, about one-third of the distance up from Mollendo. The meagerness of

First Appearance of a Railway Motor Car at Sicuani

the layout at this, the main shops of the line, is sufficient to cause an inquiry as to how the job is done. The answer lies in the personality of the chief mechanical engineer, H. E. Dalzell, who during the war, finding himself deprived of most of the necessaries, proceeded to make the most of it—and has been doing mostly that ever since. They say that necessity is the mother of invention. Those who seek a demonstration of the truth of this old adage should stop at Arequipa and see the reinforced journal box lids they are putting on all "axle boxes" and which are successfully withstanding the damaging effects of end thrusts of car axles on 90-meter radius curves which, previous to the adoption of the new type lids, were consuming axles, brasses and inside faces of boxes almost as fast as they could be replaced. Here likewise is to be found an object lesson in feedwater heating for locomotives. Engine 57 is showing a yearly coal saving claimed to be in the neighborhood of 62 tons, which, at the abnormally high price for coal in these regions, amounts to a yearly saving of $1,775. Coal, which has been high in price and most difficult to obtain, is expected to be superseded by the use of Peruvian oil. The management hopes to have all locomotives burning oil by the end of the present year. Front ends have been standardized; electric headlights are used on most of the passenger engines and additional sets are being secured from time to time.

Company Builds Cars

All of the corporation's cars are manufactured complete on the job, the only parts being brought into the country being the axles and rolled steel wheels, cast iron wheels having proved inefficient due to the heat generated by ex-

Administration Building of the Southern Railways of Peru in Arequipa, Showing West End of Passenger Station

cessive brake shoe friction on the steep grades, resulting in cracking. Westinghouse air brakes are used on the passenger trains, but owing to the remaining assortment of old freight equipment, yet to be displaced by the new car building program, it has been thought best not to try to modernize them. For the same reason, link and pin couplers are found in large numbers and it is expected to be but a matter of

a comparatively short time when automatic couplers will be applied to the new rolling stock when the latter will have approached a sufficient quantity to make the move advisable.

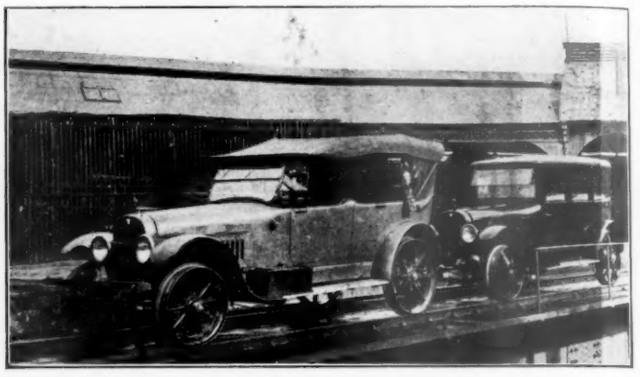
Lake Titicaca

For freight handling on Lake Titicaca, Puno at the west and Guaqui at the east end of the lake, are equipped with batteries of four 5-ton steam cranes for the transfer of freight between cars and ships. The loading record for a vessel at these ports is 750 tons in one day. The equipment on this unique link, a lake division of a mountain railway, is no less up-to-date than all of the other parts which make up the system. There are four oil-burning steel steamers in

The Terminal at Puno, Lake Titicaca. Tug Yapura and S. S. Coya at the Wharf

service there, the largest being the Inca, a 750-ton cargo steamer, built to British Admiralty specifications, with accommodations for 70 first-class passengers, running between Puna and Guaqui, direct. There are two other steamers of 450 and 165 tons capacity, respectively, a tug of 100 tons capacity and two steel lighters built at the Arequipa shops and capable of carrying 320 tons between them.

Traffic on the line comprises daily five and six car passenger trains between Mollendo and Arequipa with three passenger trains per week from Arequipa to Puno on the lake with through steamer connections for La Paz. A daily freight service of two trains is operated from Mollendo to Arequipa, these trains running about 175 tons minimum. The trains are sent from Arequipa to the highest point, called Pillones, in four or five sections, and at that station are made up again and hauled by a single locomotive, across

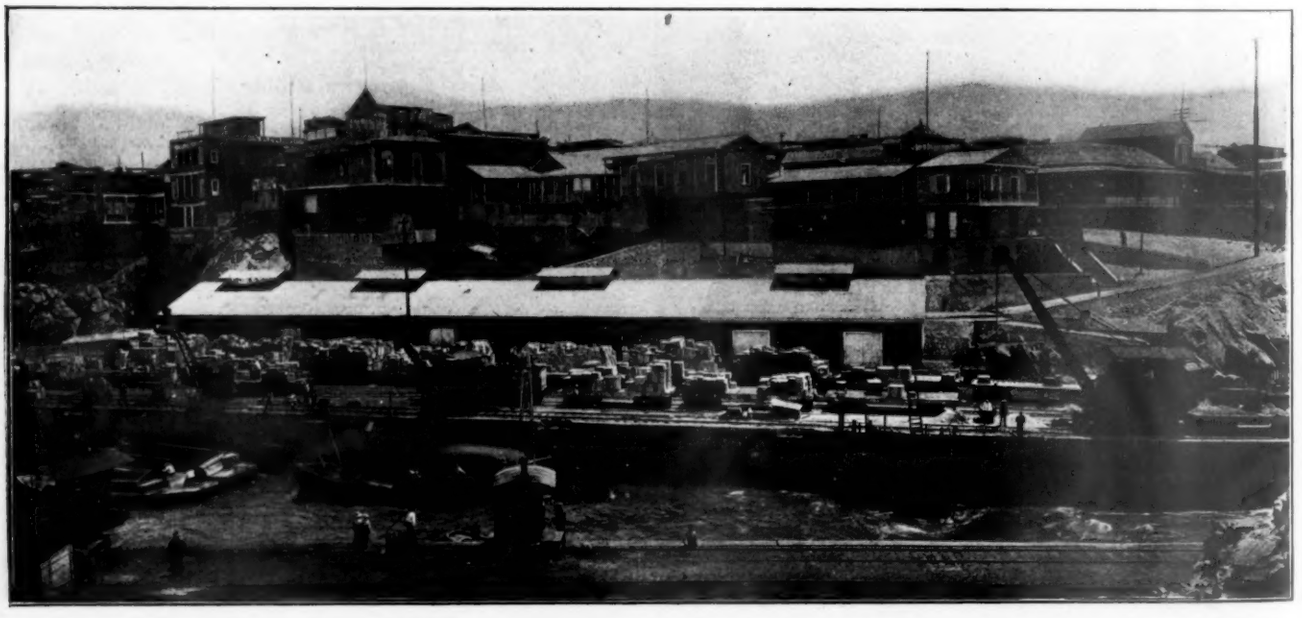


Two Hudson Super Sixes, Converted to Standard Gage Track, Brakes on Four Wheels, Working up to 14,000 Ft. Above Sea Level. The Front Car Has Made Over 40,000 Miles

the level pampas or plains, to Juliaca where the respective cars are distributed for La Paz, via Puno and the lake, and Cuzco in the opposite direction.

The Southern's struggles for increased revenues through the development of resources along the right of way have not been lightened by the difficulty of securing capital because of the war. The new government of Peru, however, is reported to be friendly to the exploitation of the minerals along the lines and the road is looking hopefully forward to the increased business which such developments will doubtless assure.

In bright contrast to the country through which this railway has carried the traveler, are the attractively furnished quarters of the Engineers Society of Lima, facing the Plaza in that city. Those who would cultivate the intellect of the



Mollendo Terminal Freight House and Lighter Canal, Showing the Business End of the Line at Work Unloading Freight from Lighters to Wharf with Steam Cranes

country or who are in search of knowledge of the comparative condition of the many railway projects in this newly awakening land, should not hesitate to direct themselves to the agreeable young civil engineer, Senor Hector Escardo, president of the club and an ex-minister in the cabinet of the former president of the republic.

Proposed New Lines

Prominent among the probable new railways to be constructed in the near future is the proposed 3 ft. gage line from Paita inland to the Maranon or Amazon river. Paita is a town on the northern Peruvian coast. The Maranon will be reached at a point in the vicinity of Limon where it is said that the depth of the stream will allow good sized steamers to ascend from the Amazon. The republic's new president, Senor Leguia, is said to have taken a strong interest in this development, the completion of which will give Peru its first transcontinental route.

A particular pet among certain of the Peruvians is the cherished dream of a through line from Lima to Buenos Aires, via the Central of Peru, up 15,600 ft. over the top of the Andes to Huancayo, thence over a railway which would conquer some 500 miles of extremely difficult topography to Cuzco; from the latter point over the Southern of Peru, across Lake Titicaca, through La Paz and down the Antofagasta & Bolivia meter gage line to Uyuni; thence over the short branch, also of meter gage, to the end of the track at Atocha. From this point there are about 125 miles of partly constructed railway, completion of which is said to be held up by lack of funds on the part of the promoters. On the other side of this gap lies La Quiaca on the Argentine frontier, the northern terminal of the Argentine State lines, also of meter gage. When this Atocha-La Quiaca link is finally completed and the Argentine government completes its part of the program by extending the State railway lines south, from a point slightly north of the city of Rosario, the Bolivian will be able to have a ride in a train of the same gage via this route, or else over the meter gage Central Cordova from Cordova south, all the way from La Paz to Buenos Aires; but the resident of Lima will not. That is, unless the Peruvians build a meter gage road from Lima to the borders of Lake Titicaca, which is unlikely. It is probable that freight from Callao and the district around Lima will not find itself relieved either of cost or difficulty if routed for Buenos Aires over the cherished route described. Freight would perhaps be hauled quicker and cheaper via the Southern from Mollendo La Paz, thence down the new line, or preferably, in order to avoid transshipment which the Southern's route involves at the lake as well as the use of two gages, via the Arica-La Paz meter gage railway from Arica over a connecting link in La Paz.

Freight Traffic Growing Rapidly

WASHINGTON, D. C.

A RECORD MOVEMENT of freight for the month of August is indicated by the reports compiled by the Car Service Division of the American Railroad Association, showing the revenue car loading. For the week ended August 28 the total loading was 985,064 cars, as compared with 951,653 in the corresponding period of 1919 and 980,931 in 1918; for the four weeks ending August 28 the total car loading was 3,853,822 as compared with 3,580,367 in 1919 and 3,849,026 in 1918. As the traffic handled in August, 1918, was greater than that for August, 1917, it is apparent that the freight business for August this year was larger than for any preceding August. The loading for the week ended August 28 not only established a new record for this year, exceeding that for the preceding week by nearly 21,000, but it approaches the largest record ever made. During 1918 in May and October there were two or three weeks when the total freight loading was slightly over 1,000,000 cars. The detailed report is as follows:

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

Summary—All Districts: Comparison of Totals This Year, Last Year, Two Years Ago, for Week Ended Saturday, August 28, 1920

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L. C. L.	Miscellaneous	Total revenue freight loaded: This year 1920	Total revenue freight loaded: Corresponding year 1919	Total revenue freight loaded: Corresponding year 1918	Received from connections: This year 1920	Received from connections: Corresponding year 1919	Received from connections: Corresponding year 1918
Eastern	1920	7,588	2,688	55,192	3,453	8,755	10,955	45,833	100,061	234,525	.....	.....	265,175	.....	.....
	1919	8,910	2,964	53,311	3,473	8,350	5,832	21,192	129,795	.....	233,827	237,261	.....	252,530	267,553
Allegheny	1920	2,970	3,606	68,813	6,497	4,289	13,609	39,096	75,247	214,127	.....	.....	139,203	.....	.....
	1919	4,065	3,255	60,264	3,712	4,577	9,674	42,287	78,970	.....	206,804	225,234	.....	149,154	189,423
Pocahontas	1920	255	279	23,769	1,389	1,374	103	3,145	6,588	36,902	.....	.....	20,277	.....	.....
	1919	353	326	23,260	1,304	1,416	114	120	9,804	.....	36,697	40,880	.....	18,237	24,507
Southern	1920	3,332	1,827	24,995	1,627	19,471	2,960	36,059	38,555	128,826	.....	.....	76,821	.....	.....
	1919	3,509	2,483	22,330	399	18,819	2,526	22,478	47,601	.....	120,145	121,874	.....	67,842	69,287
Northwestern	1920	13,849	7,435	12,196	1,783	19,039	46,356	28,797	41,243	170,698	.....	.....	61,407	.....	.....
	1919	15,290	10,644	8,888	1,175	16,259	42,764	21,333	50,495	.....	166,848	170,707	.....	65,300	85,107
Central Western	1920	12,164	10,185	20,887	359	6,321	3,062	31,791	47,402	132,171	.....	.....	73,431	.....	.....
	1919	14,387	12,868	19,687	1,012	4,783	3,388	22,911	46,794	.....	125,830	126,122	.....	67,946	68,426
Southwestern	1920	4,411	2,603	6,051	133	8,613	347	17,498	28,159	67,815	.....	.....	52,796	.....	.....
	1919	6,185	3,027	6,866	78	7,443	391	13,147	24,365	.....	61,502	58,853	.....	50,126	47,967
Total, all roads	1920	44,569	28,623	211,903	15,241	67,862	77,392	202,219	337,255	985,064	.....	.....	689,110	.....	.....
	1919	52,699	35,567	194,606	11,153	61,647	64,689	143,468	387,824	.....	951,653	.....	.....	671,135	.....
	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	980,931	.....	.....	752,270
Increase compared	1919	.....	.....	17,297	4,088	6,215	12,703	58,751	.....	33,411	.....	.....	17,975	.....	.....
Decrease compared	1919	8,130	6,944	.....	.....	.....	.....	.....	50,569	.....	.....	.....	.....	.....	.....
Increase compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	4,133	.....	.....	.....	.....	.....
Decrease compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	63,160	.....	.....

The reports received by the Car Service Division also indicate additional progress in clearing up the freight congestion. For the week ended September 4 the accumulations of delayed cars had been reduced to 64,060. This is a reduction of about 6,000 cars as compared with the preceding week. About 25,000 of the delayed cars are held for export and coastwise movement. The car shortage, however, is increasing as the demand for cars in the grain section increases. For the week ending September 1 the average daily "deferred car requisitions" was 151,440 for the United States and Canada, of which 81,902 were box cars, and 146,070 for the United States alone.

The weekly reports received from the local committees on car service for the week ending September 4 continue to show an improvement in service at most points and progress in the campaign for car conservation. At most terminals switching service is reported as normal or practically normal, although at some cities there is still a shortage of switching forces.

Shortages of labor for car repairs are reported from many points, but many of the committees report an improvement in labor conditions, both as to numbers and as to efficiency. The Twin Cities committee reports that labor conditions have not been so good as at present in the past four years. At Pittsburgh the committee states that the labor situation is very materially improved, due to former employees applying for work, although many men employed during the strike have left the service with the receipt of their back pay. The Indianapolis committee says that practically 90 per cent of the yard brakemen employed at present have entered the service within the past two months. Labor efficiency is still reported as below normal at most points.

Many of the committees report that there has been no complaint as to service from industries during the week, but there are very general reports of inadequate car supply. The Twin Cities committee reported the car supply as adequate at the time, but said that many farmers were holding grain for higher prices and that in about two weeks there would be a much greater demand for cars. Nearly all the local committees report excellent co-operation on the part of shippers and consignees in the campaign for prompt release of equipment and heavy loading. The practice of making up solid trains is being continued at many points with good results.

The Twin Cities committee reports that 14,287 cars were repaired during the week.

At Baltimore the release of equipment continues good, full co-operation being received from consignees and encouraging results as to heavy loading.

The Philadelphia committee says that switching service both at Camden and Philadelphia terminals is about normal. Arrangements have been made to forward 98 bad order cars to other shops for repairs. 19,251 cars were unloaded in the Philadelphia terminal as compared with 18,884 previous week. A total of 325 cars was unloaded by consignees Saturday afternoon and Sunday, in addition to 725 cars unloaded by railroad forces.

Normal switching service is being performed by railroads in the Pittsburgh terminal. The accumulation of cars containing sugar, newsprint paper and canned milk in the Pittsburgh district has been relieved by inducing consignees to place the commodities in storage. Approximately 150 carloads of sugar and 50 to 75 carloads of newsprint were put in storage.

All team tracks in the entire St. Louis district were checked up and the drive resulted in the unloading and release of 62 badly delayed cars. Also 173 embargoed cars were released and rerouted by inspectors. A total of 19,759 cars was repaired during the week of September 2. The normal switching force per day in the district should be 2,232 men, working 17,909 hours. On September 2 there were 2,221 men working 18,141 hours.

At Kansas City all interchange is reported as being handled promptly and switching service at industries is normal. A total of 10,904 cars was repaired during week.

The New York committee reports switching service normal on all roads in territory and no complaints from industries. All roads are making a special drive toward prompt release of cars and heavier loading. The Pennsylvania Railroad established a record in coal dumping at South Amboy, N. J., during August, 627,000 tons. No complaints were received from industries regarding car shortage.

At Cleveland 4,428 bad order loads and 5,398 bad order empties were repaired with 75 per cent of the authorized forces working. The campaign to expedite the release of equipment has been continued and the committee has held meetings with representatives of the larger industries in an effort to have them not only more promptly release equipment, but reduce the number of cars used in intra-plant work. A campaign to reduce the use of equipment in cross-town service is being vigorously pushed and has released approximately 200 cars per week for other service.

At Chicago 269 cars were rerouted because receiving roads were unable to handle to specified destination. Switching performance ranges from 80 to 100 per cent of normal on various lines.

The Detroit committee reports a plentiful supply of labor on all lines.

Daniel Willard, chairman of the Advisory Committee of the Association of Railway Executives, announces that to avoid the confusion that has resulted from the similarity between the names of the Car Service Commission, of the American Railroad Association, located in Washington, D. C., and the Interstate Commerce Commission, it has been deemed expedient to change the name of the Car Service Commission. Effective September 1 the Car Service Commission will be officially designated as the Car Service Division of the American Railroad Association. W. L. Barnes, formerly special assistant, is appointed executive manager of the Car Service Division. He will report direct to the chairman of the Advisory Committee of the Association of Railway Executives.

The Car Service Division will be organized in sections and each section will be under the direction of a manager. For the present and until further notice the organization will be as follows:

W. C. Kendall, manager, Railroad Relations Section.
A. G. Gutheim, manager, Public Relations Section.
W. J. McGarry, manager, Field Work Section.
D. E. Spangler, manager, Open Top Car Section.
L. M. Betts, manager, Closed Car Section.
M. B. Casey, manager, Refrigerator Car Section.
C. F. Stewart, manager, Troop Movement Section.

Managers of sections will report direct to the executive manager of the Car Service Division.

The semi-monthly bulletin of percentages of freight cars on line to ownership, as of September 1, compiled by the Car Service Division, shows a great deal of progress toward equalizing the distribution of cars in accordance with ownership by regions, although they are wider variations as between individual roads. On September 1 the Eastern district had 104.9 per cent of its ownership, the Allegheny district 99.3 per cent, the Pocahontas district 74.4 per cent, the Southern district 86½ per cent, the Northwestern district 99.8 per cent, the Central Western district 94.3 per cent and the Southwestern district 100.4 per cent, while the Canadian roads had 93.5 per cent.

The Car Service Division has issued the following summary of general conditions as of September 13:

Box Cars—The requirements continue to exceed the supply at all points, especially heavy traffic centers. Grain loading in the West is considerably below last year, and while there are some indications of a tendency to withhold shipment in anticipation of possible higher prices, the demand for cars for immediate loading is greatly in excess of the supply. Cars are being moved west in volume, both loaded and empty, although surplus previously available in the East and South is practically exhausted. It is anticipated that the volume of perishable traffic which will be offered for transportation during coming season will be especially heavy. Ventilated box cars must be withdrawn from general dead freight service and the loading of such cars confined to points in direct line of homeward movement.

Automobile Cars—This equipment must be moved, loaded or empty, to the central automobile manufacturing district for protection of automobile loading.

Stock Cars—Demand so heavy for protection of stock loading and for building up supply on Western lines for movement of range cattle and sheep, that utmost efforts must be made to move cars to owning lines, or in accordance with specific orders issued for necessary relocation.

Refrigerator Cars—Requirements for refrigerator cars continue heavy in all sections, especially in California, where it has not been possible to meet the demand. Imperative,

all concerned give special attention to movement of refrigerators. Fall fruit crop in Colorado, Kansas, New York, Michigan and the Pacific Northwest expected to be especially heavy. There is considerable activity in the demand for cars to protect packing house, dairy products and eggs.

Flat Cars—Continue in serious demand, the percentage of orders filled averaging from 40 to 50 per cent. While the press of requirements for agricultural implements is considerably diminished, construction work is held waiting transportation which can be supplied with flat cars, particularly lumber, steel and stone. There should be no let-up in activity to get this type of equipment promptly released and moved in accordance with outstanding directions and the use of flat cars should be confined to those commodities which require this type of equipment for transportation.

Open Top Cars—The coal car placements reported thus far this month indicate that bituminous coal production will average approximately 11,000,000 tons per week, which is slightly better than the average attained during August. The movement to tidewater and to Lake Erie ports is now progressing on a satisfactory basis. Tidewater shipments to New England were temporarily restricted, due to congestion, but have now been resumed. The strike of the miners in the anthracite regions has made available a large number of coal cars which are being rushed to the bituminous fields to assist in increasing production. In the steel loading district special attention is being given to the expeditious handling of mill gondolas, as a considerable amount of steel is still on hand awaiting transportation, although the storage was slightly reduced during the past week. There has been no change in the situation as regards the placing of open cars for commodities other than coal. Important shipments such as those urgently needed to complete road work started before issuance of Service Order 7 and other essential projects are being protected on special permits when cars cannot be provided under provisions in Service Order No. 7 permitting these to be loaded with other commodities in the direction of the coal fields.

The Car Service Division in a circular to the railroads says that the movement of citrus fruit and other perishable traffic originating in the southeast promises to be especially heavy during the coming season. The roads in that section have provided themselves with a liberal supply of ventilated box cars for handling this traffic, but the cars are now badly scattered on foreign lines, and in use in ordinary dead freight service.

In spite of all efforts, proper results have not been secured in the return of such cars to home lines. As a result, during the early fruit movement great numbers of ordinary box cars were used, which were not only an unsatisfactory vehicle for such freight, but their use was often accompanied by serious damage to the car.

Indiscriminate loading of ventilated box cars with dead freight, the circular says, must be immediately discontinued, and the handling of such cars policed to the extent necessary to accomplish a continuous movement to or in the direction of owning road. The following instructions should be immediately placed and given effective enforcement:

Ventilated Box Cars.

1—May be loaded to or in the direction of the home road with freight requiring ventilation.

2—May be loaded to or in the direction of, but not beyond, the home road with other classes of freight.

3—May not be backhauled or held for prospective loading. If immediate loading not available as above, must be moved empty to owner by direct route.

When supply of ventilated cars is not sufficient to protect loading of freight requiring ventilation without using foreign cars contrary to Item 1, permission for such use must first be obtained from the Commission on Car Service. Roads owning ventilated box cars will furnish the Commission on Car Service with a semi-monthly report showing the number of such cars of their ownership located on each foreign line, which will be used to check the return of such cars to home roads.

New Passenger Rates in United States and Europe

THE INCREASED RATES on interstate passenger travel, recently authorized by the Interstate Commerce Commission and placed in effect throughout the country on August 26, have resulted in the expression of apprehension by some persons that passenger travel will be curtailed and that consequently the increased rates will not result in greatly increased revenue from passenger train operation.

In spite of the recent advances in this country, passenger rates here are much lower than in Europe, as shown by statistics recently compiled by the Bureau of Railway Economics are reproduced in the three tables below:

PASSENGER FARES IN GREAT BRITAIN

From	To	Distance, miles	1st Class Pre-war rates	1st Class Present rates	3rd Class Pre-war rates	3rd Class Present rates
London	Glasgow	401.50	$14.11	$24.70	$8.03	$14.05
Manchester	London	183.50	5.96	11.07	3.77	6.59
London	Crewe	158.90	5.88	10.30	3.20	5.62
Liverpool	York	105.75	3.85	6.75	1.99	3.47
Liverpool	London	193.50	7.06	12.35	4.01	7.04
Manchester	Aberdeen	363.50	13.63	23.89	6.89	11.98
Manchester	Glasgow	225.25	8.64	15.37	4.32	7.56
Manchester	York	68.50	2.51	4.40	1.36	2.39
Manchester	Leeds	43.00	1.70	2.98	0.87	1.54
London	Perth	450.00	16.02	28.04	8.86	14.95
London	Crieff	467.75	16.71	28.96	8.82	14.05
London	Carlisle	299.00	9.85	19.59	5.90	10.30
Chester	Windermere	80.25	4.10	7.18	1.95	3.39
Chester	Lancaster	50.75	2.82	4.95	1.34	2.35
London	Mansfield	16.25	4.40	7.71	2.74	4.85
London	Mintlaw	565.00	20.52	35.91	10.44	18.29
London	Oldham	188.25	6.10	10.69	3.77	6.59
London	Edinburgh	400.00	13.99	24.50	7.95	13.95
London	Dunrobin	654.00	24.03	42.10	11.44	20.01
London	Birmingham	113.00	4.22	7.38	2.25	3.91
London	Sheffield	158.25	5.09	8.92	3.18	5.58

PASSENGER AND SLEEPING CAR FARES

From Paris, France, to Various Points on the Continent

From	To	Distance, miles	Passenger fares 1st class	Passenger fares 2nd class (a)	Sleeping Car fares (b)
Paris	Aix-les-Bains	347.97	$22.89	$15.09	$12.53
Paris	Antwerp	226.18	14.14	.....	.....
Paris	Brussels	198.22	12.40	8.22	8.18
Paris	Bordeaux	365.37	24.00	15.82	12.33
Paris	Barcelona	753.72	54.54	37.41	.....
Paris	Biarritz	507.35	32.60	21.49	18.31
Paris	Brindisi	1,129.65	75.12	.....	33.74
Paris	Belgrade	1,237.15	95.32	.....	.....
Paris	Bucharest	1,671.49	137.15	.....	.....
Paris	Cannes	656.17	43.10	28.40	22.99
Paris	Florence	731.35	54.45	.....	.....
Paris	Geneva	375.93	25.68	16.94	14.63
Paris	Genoa	579.74	43.46	.....	.....
Paris	Grenoble	393.33	26.04	17.16	.....
Paris	London (Calais)	287.00	35.20	24.36	.....
Paris	Liege	228.04	14.51	9.67	7.53
Paris	Lyon	318.14	20.89	13.78	.....
Paris	Lausanne	316.28	23.15	.....	11.43
Paris	Lisbon	1,323.00	107.41	.....	.....
Paris	Metz	251.03	16.28	10.75	.....
Paris	Marseille	535.62	35.16	23.18	18.81
Paris	Monte Carlo	685.99	45.06	29.68	25.07
Paris	Modane	472.24	27.45	18.10	14.63
Paris	Madrid	903.47	81.96	58.90	.....
Paris	Montreaux	343.62	24.84	.....	11.80
Paris	Milan	522.57	47.59	32.02	22.12
Paris	Nice	675.43	44.36	29.23	22.99
Paris	Naples	1,045.77	67.90	51.45	.....
Paris	Prague	786.03	93.13	.....	24.96
Paris	Rome	891.64	62.46	39.52	24.67
Paris	Strasburg	312.55	20.44	18.57	11.65
Paris	Trieste	786.03	67.96	.....	30.82
Paris	Turin	500.00	34.02	22.22	20.61
Paris	Vichy	226.80	14.91	9.82	.....
Paris	Ventimille	697.18	46.11	30.39	25.07
Paris	Venice	687.24	61.39	40.41	27.56
Paris	Vienna	871.78	95.04	.....	27.19
Paris	Warsaw	1,279.40	127.78	.....	37.21

(a) These rates have been taken from the latest available tariff published. However, they are subject to change without notice.
(b) Tax of 3 francs on all reservations up to 50 francs when made in advance; above 50 francs, 4 francs tax.

PASSENGER AND SLEEPING CAR FARES NOW IN EFFECT IN THE UNITED STATES

From	To	Distance miles	Passenger fare (a)	Sleeping car fares (a) Lower berth	Sleeping car fares (a) Upper berth
Washington	New York	225	$8.79	$4.05	$3.24
Washington	Chicago	836	30.97	8.91	7.13
Washington	Jacksonville	797	30.68	9.32	7.45
Washington	New Orleans	1,100	43.46	12.96	10.37
Washington	St. Louis	980	36.57	9.72	7.78
Washington	Miami	1,163	44.90	14.18	11.34
Washington	Key West	1,319	52.65	16.20	12.96
Washington	Kansas City	1,328	47.40	12.96	10.37
Boston	New York	230	8.92	4.05	3.24
New York	Chicago	908	25.28	9.72	7.78
Chicago	Denver	1,034	40.26	11.75	9.40
New York	St. Louis	1,052	41.07	11.75	9.40
Denver	San Francisco	1,565	62.02	17.82	14.26
New York	New Orleans	1,325	52.25	15.80	12.64
New York	Cleveland	588	22.16	6.08	4.86
Chicago	Salt Lake City	1,027	59.48	16.61	13.28
Chicago	Omaha	492	19.36	4.86	3.89
San Francisco	Seattle	955	36.31	10.04	8.75
Chicago	Los Angeles	2,246	86.55	25.52	20.41
Chicago	San Francisco	2,564	86.55	25.52	20.41
New York	Jacksonville	1,022	39.46	11.75	9.40

(a) Includes war tax.

The passenger fares for Great Britain include all the increases to date and were compiled from the schedules prepared by the Railway Clearing House, effective on August 5, 1920. Second-class travel in England is now almost nonexistent, and the quotations are therefore for first and third classes only. The bulk of English passenger travel is, of course, third-class.

The passenger fares shown from Paris to various points on the continent were furnished by the American representative of the Paris-Lyons-Mediterranean and include all increases up to August 1, 1920.

It will be noted that the British third-class fares are slightly lower than rates in the United States while the first-class fares are very much higher. Third-class accommodations in England cannot be regarded as nearly as good as standard accommodations in the United States, hence the third-class fares are really higher than our standard fares, the character of service considered.

In all these comparisons, foreign money has been reduced to United States equivalents at the normal rates of exchange.

A Labor-Saving Machine for Line Construction

A MACHINE for boring holes has been developed and placed on the market recently by the International Earth Boring Machine Corporation, Chicago. This equipment bores holes from 6 in. in diameter to 30 in. in diameter, 8 or more feet in depth, and is arranged with appliances for setting the poles in the holes after they are bored. While this machine primarily has been designed for the above mentioned purpose it can also be used to advantage for battery chute holes, foundation work and similar construction. Under favorable working conditions it is said that this machine will bore 100 holes and set 100 poles per day; that construction gangs using this machine have been able to bore holes in 45 sec., and that holes 2 ft. in diameter by 8 ft. deep have been bored through hard pan in 12½ min. Ordinarily holes of this character have to be blasted. The claim is made that the saving per hole by the use of this machine is such that the machine will soon pay for itself. The machine has demonstrated its adaptability and capacity for drilling through frozen ground, hard pan, shale, gumbo, clay, ordinary soil, gravel and sand.

Machines for this purpose are built in three types, as follows: Type A is horse drawn, with the boring machine and derrick mounted on a turntable arranged on a wagon frame. Power is furnished by a gasoline motor on the turntable. Type B is a four-wheel-drive motor truck with the boring mechanism and derrick mounted on a turntable clamped to the motor truck frame. Power for the boring mechanism and winch is furnished direct from the truck engine. It is claimed that this machine has great

Type B Machine Boring an Anchor Hole

maneuvering capacities. Type C is called the "crawler-tractor." Its boring mechanism and derrick are mounted on a frame of the machine and the power for the boring mechanism and winch is supplied through a special gearing

Type C Machine

from tthe tractor engine. This machine can travel and operate on swampy ground or steep railroad embankments. The photographic reproductions show type B and C machines in service on railroads.

THE GLOUCESTER FERRY COMPANY, which has been operating boats between Gloucester, N. J., and South street, Philadelphia, for about 60 years, discontinued operations on September 9 because it was unable to meet the wage demands of the employees.

General News Department

Two airplane mail carriers, Walter Stevens and Russell Thomas, were killed by the fall and explosion of their machine near Pemberville, Ohio, on September 14.

Fines amounting to $500 were imposed in the federal court at Pittsburgh, Pa., on September 9, against the Pittsburgh, Cincinnati, Chicago & St. Louis for violation of the law prescribing sixteen hours as the work-day limit in train service.

The Union Pacific announces the establishing of a minimum pension of $25 a month. The action will affect approximately 300 pensioners of lines in the Union Pacific system, whose monthly pensions heretofore have been less than this amount.

The Civil Service Commission, Washington, announces that there are more than 100 vacancies in high-grade accounting positions under the Interstate Commerce Commission paying salaries ranging from $2,100 to $3,900 a year. The positions are principally in the field.

Thirty-four miles a day was the average freight car movement recorded on the Delaware, Lackawanna & Western for the month of August, or 3.5 miles better than in August, 1918. The records of the three summer months show: This year, June, 32.3; July, 32.2; August, 34.0. Last year, June, 28.2; July, 29.2; August, 31.4. Year before, June, 29.7; July, 29.9; August, 30.5.

The State Department has announced at Washington that advices have been received from the American consulate general at Melbourne that the Australian commonwealth ministry has decided to secure the services of a railway expert from this country and one from Great Britain to act with an Australian railway man, as chairman, in an investigation of the question of a uniform railway gage.

The Western Railway Club will hold a meeting at the Hotel Sherman, Chicago, on September 20, at which L. C. Fritch, vice-president of the Chicago, Rock Island & Pacific, and Samuel M. Vauclain, president of the Baldwin Locomotive Works, will speak. Mr. Vauclain's address will feature a motion picture entitled, "The Building of a Locomotive in the Plant of the Baldwin Locomotive Works."

Seventy-five managers of grain companies in Illinois met recently at Bloomington, Ill., to confer with Frank H. Funk, commissioner of the Illinois Public Utilities Commission, with a view to taking steps to relieve the need of cars to move Illinois grain. The grain men represented private grain concerns and farmers' co-operative elevators. A committee was named at the meeting to go to Chicago and to Washington to present the Illinois situation to railroad and federal agencies.

Lehigh Valley Employee-Stockholders

More than 1,000 employees of the Lehigh Valley have purchased stock in the company and additional subscriptions are being received daily. Recently employees were advised that they might become part owners of the railroad for which they work through the purchase of stock which could be paid for on the installment plan through small monthly deductions from the payroll, as was done during the several Liberty Loan campaigns. The company buys the stock on orders from employees and they pay the price prevailing at the New York Stock Exchange on the day their orders are received. No drive was made, President E. E. Loomis having ordered that employees were not to be urged to purchase stock, but the first 1,000 purchasers have taken an average of 4.4 shares apiece, representing an investment of approximately $200,000 at the present value of the stock. All classes of employees are represented among the purchasers, many using a part of the back pay recently received.

Representative Esch Defeated for Re-nomination

Representative John J. Esch, of Wisconsin, chairman of the House Committee on Interstate and Foreign Commerce, and co-author with Senator Cummins, of Iowa, of the Transportation Act, was defeated for re-nomination for Congress in the Wisconsin Republican primaries on September 8. Mr. Esch was bitterly opposed in his state by the railroad labor organizations. The national campaign by the sixteen associated railroad labor organizations, including the four big brotherhoods, claims the credit for the defeat of Representative Esch, and they are now preparing plans to attempt to defeat Senator Cummins' re-election, as they failed to beat him in the primaries.

The Railroad Administration Settling Claims

The Railroad Administration has reached a settlement in the cases of approximately 2,000 claims filed by railroad companies on account of items of additions and betterments made during the period of federal control which the companies claimed were made for war purposes or in connection with unification and, therefore, were properly chargeable to the government rather than to the companies. The greater part of the claims have been rejected, although payments were agreed upon by the Railroad Administration amounting to approximately $217,000. The claims which it has rejected or which were withdrawn during the negotiations amounted to approximately $2,000,000. The Railroad Administration has now received complete claims covering all items of account between the companies and the Railroad Administration from 43 companies.

An early announcement is expected of the appointment of a director of the Division of Liquidation Claims of the Railroad Administration, to succeed Max Thelen, and a director of the Division of Finance, to succeed Swagar Sherley.

Opposes National Adjustment Boards

The Citizens' Transportation Committee, New York City, has sent to the United States Railway Labor Board at Chicago a strong protest against a proposal, which has been presented to the board, for the organization of National Adjustment Boards for the settlement of questions raised by railroad employees. The Citizens' Transportation Committee is backed by the Merchants' Association and other large business interests, and it was mainly instrumental in killing off the strikes of longshoremen and truckmen in New York City a few months ago. Its present complaint is based on the absence of any representative of the public on the Boards provided for in the plan now proposed by the labor unions, for the settlement of questions of wages. The labor leaders are aiming to secure the establishment of boards under which the railroads as a whole must enter into contractual relations, on a national scale, with unions which propose to represent every class of employee; in other words, the proposal is for a national closed shop for all classes of railroad employees. This plan, says the protest, is entirely at variance with the intent and purpose of the Transportation Act. "National good faith requires that the roads be returned to their owners on as near the same basis as when taken over by the government as possible. Congress aimed to decentralize railroad management, including the matter of labor control. It is now sought to keep the matter of discipline removed from the hands of the managers and to center it in the proposed Na-

tional Boards of Adjustment. This is a matter of vital importance to the traveling and shipping public. Rules and regulations affecting efficiency and safety must be vigorously upheld, and this is not possible when discipline must be ultimately enforced from a distant point and not directly by a man on the ground. . . . The control of remote national boards in a great basic industry would be a national disaster and menace to industrial and social conditions generally."

Steel Treaters' Societies

Two organizations of men interested in the heat treatment of steel were merged into one at the first session of their annual convention and exhibition held at the Commercial Museum, Philadelphia, September 14 to 18. Plans for the amalgamation have been under active consideration for some time and former members of the American Steel Treaters' Society and the Steel Treating Research Society are now united in one organization known as the American Society for Steel Treating.

Col. A. E. White, chairman of the Amalgamation Committee, presided at the opening session and the convention was welcomed to the city by E. J. Cattell, city statistician, on behalf of Mayor Moore. Tellers were appointed and at the conclusion of the morning session the chairman announced the election of the following officers: Col. A. E. White, president; T. E. Barker, vice-president for two years; T. D. Lynch, vice-president for one year; W. H. Eisenman, secretary; W. S. Bidle, treasurer; H. J. Stagg and E. J. Janitzky, directors for two years, and W. C. Peterson and F. P. Fahy, directors for one year.

Proposed Joint Exhibit for Minor Railway Mechanical Associations

At a joint meeting of the International Railway General Foremen's Association and the Association of Railway Supplymen, held during the recent convention of the former organization, the following resolution was adopted:

"RESOLVED, In the interest of economy of time, which is a vital factor to the transportation problem today, the Association of Railway Supplymen has suggested that mutual benefit might be obtained by holding the railway mechanical convention at the same time and place whereby the exhibits would serve jointly the several organizations.

"The association, therefore, suggests that the International Railway General Foremen's Association give serious consideration to this thought."

At a special session of the executive committee of the International Railway General Foremen's Association it was decided that the interests of the several railway associations would be advanced if the suggestions embodied in this resolution could harmoniously be put into effect. Accordingly, letters have been sent out to the various other mechanical department organizations, inviting their executive committees to meet in joint session at the Hotel Sherman, Chicago, on October 4, to canvass the situation and, if possible, work out a plan looking toward the holding of the several conventions at one place during one continuous period.

An Appeal to His "P. R. R. Family"

Samuel Rea, president of the Pennsylvania Railroad, in a general notice to all the supervisory and working forces, calls upon them "to face problems which are without doubt the most important in the history of this railroad system. Our reputation and standing, as individuals and as organization, are at stake." Continuing, Mr. Rea says, in part: "Every man and woman in the service has a distinct, individual share of this great responsibility which cannot be honorably evaded or shifted to the shoulders of another. The public has quite generally approved the rate advances. There can be little doubt, also, that the public feels that the employees of this and all other railroads in the country have been treated in the matter of wages with justice. * * * The public will expect a full measure of courteous consideration on the part of every individual officer and employee, such as will restore the old Pennsylvania Railroad standards, of which we were once so justly proud. The owners of large and small amounts of our stocks and bonds rely on us to earn a fair return on their investments. * * * Satisfied patrons, receiving good service and courteous treatment, are far more likely to continue willing to pay the rates necessary to maintain generous wage levels than patrons who are poorly served or discourteously treated. * * * To those who have so well maintained Pennsylvania standards in the past, it is a great pleasure for me to extend the deep appreciation of the directors and management. * * *"

Exhibitors at the General Foremen's Association Convention

Over 80 companies, members of the Association of Railway Supply Men, were exhibitors at the Hotel Sherman, Chicago, during the sixteenth annual convention of the International Railway General Foremen's Association, which was held September 7 to 10, inclusive. The list of the companies, their exhibits and representatives, is as follows:

Air Reduction Sales Co., New York.—Acetylene tanks and torches.—Represented by H. H. Melville and R. T. Peabody.

American Arch Co., New York.—Security brick arch and double tube supported arch.—Represented by A. W. Clokey and R. J. Himmelright.

American Machinist, New York.—Represented by F. D. Wheeler.

American Steel Foundries Co., Chicago.—Models of draft arms, couplers, adjustable coupler pocket, Type D coupler and clasp brakes.—Represented by H. J. Melchert and W. G. Wallace.

Armstrong-Blum Mfg. Co., Chicago.—Band saws, steel machine saw and combined punch shear and bender.—Represented by H. J. Blum and F. A. Blum.

Armstrong Bros. Tool Co., Chicago.—Ratchet drills, tool holders, wrenches and dogs.—Represented by J. C. Fletcher and Horace Armstrong.

Ashton Valve Co., Boston, Mass.—Wheel press recording gages, steam and air gages, pressure testing devices, recording gages and safety valves.—Represented by J. W. Motherwell, J. F. Gettrust and H. O. Fettinger.

Baldwin Locomotive Works, Philadelphia.—Photographs of locomotives.—Represented by F. A. Neely, W. H. Evans and C. H. Gaskill.

Barco Mfg. Co., Chicago.—Engine tender connections, car steam heat connections, roundhouse blower connections, coach yard steam heat connections, air reservoir joints, crosshead and shoe, automatic smokebox blower fitting and power reverse gear.—Represented by F. N. Bard, C. L. Mellor and F. S. Wilcoxsen.

Borden Co., Warren, Ohio.—Die stocks and cutters.—Represented by V. M. Gaspar.

Boss Nut Co., Chicago.—Lock nuts, bolts and rivets.—Represented by J. A. MacLean, J. W. Fogg and A. MacLean.

Brubaker & Bros., W. L., New York.—Taps, dies and reamers.—Represented by J. R. Smith.

Buckeye Steel Castings Co., Chicago.—Cast Steel coupler yoke for use with M. C. B. standard "D" coupler.—Represented by G. A. Sutherland.

Carbo-Hydrogen Co. of America, Pittsburgh, Pa.—Cutting and welding apparatus and carbo-hydrogen gas.—Represented by F. S. Austin, V. F. Schnubb, E. G. Loughner and J. H. Wright.

Carborundum Co., Niagara Falls, N. Y.—Represented by W. E. Knott and H. P. Frost.

Chicago Pneumatic Tool Co., Chicago.—Pneumatic tools.—Represented by C. W. Cross, J. L. Canby, C. E. Leverenz, R. C. Black, J. L. Crowley, J. D. Crowley, N. S. Thulin, D. E. Cooke, E. K. Lynch and T. J. Smallwood.

Clark Equipment Co., Buchanan, Mich.—Twist drills.—Represented by H. G. Tuttle and C. O. Montague.

Cleveland Twist Drill Co., Cleveland, Ohio.—Twist drills, screw extracters.—Represented by H. S. White and O. B. Hansen.

Crerar-Adams Co., Chicago.—Jacks, die starters, wrenches and Lidsen's oilers.—Represented by Russell Wallace, W. I. Clock, J. A. Martin, Geo. Bassett, E. W. Koon, Chas. Gregory and E. C. Porhler.

Crucible Steel Co. of America, Pittsburgh, Pa.—Represented by F. Baskerfield and J. H. Jones.

Dearborn Chemical Co., Chicago.—Represented by W. S. Reid, I. L. Beebe, G. R. Carr and J. D. Purcell.

Detroit Lubricator Co., Detroit, Mich.—Three-feed lubricator with transfer filler attachment, U. S. standard three-feed lubricator and automatic flange oiler.—Represented by A. G. Machesney.

Detroit Twist Drill Co., Detroit, Mich.—Drills.—Represented by H. T. Scott.

Duff Mfg. Co., Pittsburgh, Pa.—Jacks.—Represented by C. M. Thulin and E. E. Thulin.

Edna Brass Mfg. Co., Cincinnati, Ohio.—Lubricators, injectors, water gages, coal sprinklers, fire extinguishers, boiler checks and locomotive boiler appliances.—Represented by E. O. Corey and H. A. Glenn.

Fafnir Bearing Co., New Britain, Conn.—Ball bearings.—Represented by D. D. Davis.

Firth-Stirling Steel Co., McKeesport, Pa.—High speed steel.—Represented by W. E. Nelson.

Flannery Bolt Co., Pittsburgh, Pa.—Flexible staybolts, bolts and installation tools.—Represented by E. I. Dodds.

Ford Co., J. B., Wyandotte, Mich.—Metal cleaning compounds.—Represented by H. J. Willwerth and Geo. J. Lawrence.

Forster Paint & Mfg. Co., Winona, Minn.—Locomotive cement and front end paint.—Represented by Helen J. Caswell.

Franklin Railway Supply Co., New York.—Butterfly firedoor, engine and tender buffer, automatic driving box wedge, Economy engine truck, flexible pipe joints, Universal valve chest, unit safety bar, tender truck, power reverse gear and No. 9 firedoor.—Represented by J. L. Randolph, C. W. F. Coffin, J. L. Bacon, H. F. Ball, R. G. Coburn, W. H. Coyle, H. M. Evans, S. D. Rosenfeldt, J. Sinkler and Paul Willis.

Galena Signal Oil Co, Franklin, Pa.—Represented by W. L. Trout, G. W.

Buckpitt, A. J. Harner, L. C. Sprague, G. B. Corey and J. A. Graham.

Garlock Packing Co., Palmyra, N. Y.—Packings.—Represented by G. W. Sullivan

Gold Car Heating & Lighting Co., New York.—Vapor valves, hose couplers, oscillating gaskets, inlet valves, regulators and thermostatic control of car heating.—Represented by Allen Sheldon and A. D. Stuver.

Grip Nut Co., Chicago.—Lock nuts.—Represented by J. B. Whitenock.

Hattiesburg Valve Stem Packing Co., Hattiesburg Miss.—Reciprocating valve stem packing.—Represented by J. W. Dyess.

Hunt-Spiller Mfg. Corporation, Boston, Mass.—Gun iron.—Represented by E. J. Fuller and V. W. Ellet.

Hyland Co., R. H., Chicago.—Norton jacks.—Represented by H. O. Norton, Geo. R. Law, R. D. Bates and A. C. Lipke, Jr.

Imperial Belting Co., Chicago.—Belting.—Represented by A. G. Pickett and W. G. Willcoxson.

Independent Pneumatic Tool Co., Chicago.—Pneumatic and electrical tools.—Represented by W. A. Nugent, Paul Mitchell, E. E. Lampe, J. C. Cowell, R. S. Marsh, H. White and H. C. Halbert.

Ingersoll-Rand Co., New York.—Pneumatic tools.—Represented by L. W. Schrutzer, H. H. Drew, C. H. Lungren, T. G. Abrams, W. D. Goddard and H. D. Pearson.

Jenkins Brothers, New York.—Valves and packing.—Represented by Geo. Royal.

Johns-Manville Co., H. W., New York.—Pipe and boiler insulations, locomotive spiral pipe insulation, locomotive and shop packings, air brake packing cups and expander rings, steam traps, high temperature cements and Airtite boiler coating.—Represented by J. C. Younglove, W. J. Stewart, H. J. Crowe, L. S. Wilbur and P. R. Austin.

Keller Pneumatic Tool Co., Grand Haven, Mich.—Pneumatic tools.—Represented by J. C. Campbell, W. Kelly, J. C. Willson, Edw. Biederman, W. Delaney and C. A. Bremmer.

Leslie Co., Lyndhurst, N. Y.—Steam heat and electric headlight pressure regulators and reducing valves.—Represented by J. J. Cizek and S. I. Leslie.

Liberty Steel Products Co., Inc., Pittsburgh, Pa.—Portable drill press and counter-sinker, single line torch, portable rivet heater, pneumatic dolly bar and heading attachment.—Represented by S. W. Midgley, J. M. Borrowdale and A. W. Preikschat.

Liberty Tool Corporation, Baltimore, Md.—Labor saving shop tools and equipment.—Represented by G. L. Degenhard.

Locomotive Firebox Co., Chicago.—Nicholson thermic syphon.—Represented by J. L. Nicholson, L. R. Pyle and Wm. Wilson.

Locomotive Lubricator Co., Chicago.—Scnlacks system of locomotive forced feed lubrication.—Represented by W. J. Schlacks.

Ludlum Steel Co., New York.—Carbonizing pots.—Represented by S. T. Pearsons, C. J. Poore, J. E. Poore and M. F. Hall.

Mahr Mfg. Co., Minneapolis, Minn.—Oil fuel rivet forge and torch for steel car repairing.—Represented by W. G. Barstow, C. M. Simonds and A. E. Stenzel.

Malone, J. L., Whistler, Ala.—Piston rod remover and hydraulic jack.—Represented by J. L. Malone and Jos. Kamfner.

Manning, Maxwell & Moore, New York.—Railroad shop tools and steam specialties.—Represented by C. L. Brown, R. R. Cuthbertson and R. S. Dean.

Metal & Thermit Corp., New York.—Thermit process for welding heavy parts, butt welding of wrought iron and steel pipe and carbon free metals.—Represented by H. S. Mann, C. D. Young, W. Y. Moore, W. O. Aldrich, E. Bloom, H. D. Kelley and A. Lucas.

Miller Heating Co, F. W., Chicago.—Literature and drawing describing Miller hot water washout and refilling system.—Represented by F. W. Miller.

Miner Co., W. H., Chicago.—Friction draft gears for freight equipment, friction buffers and draft gears for passenger equipment, bolster locking pins for passenger equipment, and frictionless side bearings for passenger and freight equipment.—Represented by J. R. Mitchell, B. S. Johnson and Arthur Biddle.

Modern Tool Co., Erie, Pa.—Self-opening die heads, tapping attachments and chuck and collet equipment.—Represented by R. H. Wood.

Nathan Mfg. Co., New York.—Injectors, lubricators, boiler checks, gage cocks and water gages, coal sprinkler, whistles, globe and angle valves.—Represented by Richard Welsh, W. R. Walsh and F. C. Davern.

National Boiler Washing Co., Chicago.—Machine showing pictures of parts of boiler washing plant.—Represented by David Anderson and F. W. Gale.

National Malleable Castings Co., Cleveland, Ohio.—Adjustable brake beam fulcrums, wrecking hooks, couplers, journal boxes and hand brake mechanism.—Represented by L. S. Wright and G. R. Rasmussen.

National Railway Devices Co., Chicago.—Shoemaker vertical firedoor in operation.—Represented by A. F. Lind and Jay G. Robinson.

Niles-Bement-Pond Co., New York.—Small tool catalogues.—Represented by W. G. Flaig and D. H. Teas.

O'Malley-Beare Valve Co., Chicago.—Valves and bearings.—Represented by F. H. Hitesman, J. E. Brown, J. Gallagher, W. J. Murphy, J. M. Pigott, W. Morris and Edw. O'Malley.

Ohio Injector Co., Chicago.—Lubricators, flange oilers, lifting and non-lifting injectors, water glass protector, automatic drifting valve and Ohio fire jet.—Represented by A. C. Beckwith, F. W. Edwards, W. S. Furry and F. B. Farnsworth.

Okadee Co., Chicago.—Front-end hinge, locomotive blow-off valves, tender hose couplers, water gage glass and roundhouse washout valves.—Represented by A. G. Hollingshead, G. S. Turner and W. H. Heckman.

Oxweld Railroad Service Co., New York.—Acetylene equipment.—Represented by Wm. A. Champieux, J. P. Nicholson, F. C. Hasse and R. Rivett.

Paxton-Mitchell Co., Omaha, Neb.—Piston rod packing and air pump packing.—Represented by J. L. Paxton, E. L. Chollman and J. J. Keliher.

Pilliod Co., Swanton, Ohio.—Baker valve gear.—Represented by E. J. Barnett, W. H. Bellmain, K. J. Eklund and R. H. Weatherly.

Pyle National Co., Chicago.—Cast iron headlight cases with glass reflector and wing side number doors, headlight generators, lamp cases, lamp stands, connectors and model of the Young valve gear.—Represented by J. Will Johnson, W. Miller, O. W. Young, W. Smith, J. Reese, C. LeFevre, R. L. Kilker, T. P. McGinnis ,C. P. McGinnis and G. Haas.

Racine Tool & Machine Co., Racine, Wis.—Machine saws.—Represented by F. J. Kidd, D. B. Maxwell and Wm. Rhinehart.

Rivet Cutting Gun Co., Cincinnati, Ohio.—Rivet cutting gun.—Represented by J. C. Littel and F. L. McCune.

Roberts Automatic Connector Co., Ltd., Sarnia, Ont.—Model of automatic connector.—Represented by M. A. Sanders and W. E. Saylor.

Sargent Co., Chicago.—Gage cocks, grease cups, water glass cocks, blower valve, and water glass protectors.—Represented by Geo. S. Garren.

Simmons-Boardman Publishing Co., New York.—*Railway Age* and Railway Mechanical Engineer.—Represented by C. B. Peck, J. M. Rutherford and A. R. Jarvis.

Simonds Mfg. Co., Fitchburg, Mass.—Saws, files, hack saws, tool bits, cold saws and inserted tooth cold saws.—Represented by Geo. R. Bird and H. B. Baumann.

Sunbeam Electric & Mfg. Co., Evansville, Ind.—Turbo-generator and headlight.—Represented by C. E. Kinnaw and H. A. Varney.

Tool Salvage Co., Detroit, Mich.—Salvaged milling cutters, reamers and drills.—Represented by M. F. Crawmer.

Torchweld Equipment Co., Chicago.—Welding and cutting equipment.—Represented by W. A. Slack, H. R. Fenstermaker and R. B. Scharff.

Union Draft Gear Co., Chicago.—Friction draft gear.—Represented by J. E. Zarelton.

United States Metallic Packing Co., Philadelphia, Pa.—Metallic piston rod packing.—Represented by M. B. Brewster, H. E. Hislop and R. R. Wells.

Wayne Tool Mfg. Co., Waynesboro, Pa.—Reamers, drills and taps.—Represented by J. C. Campbell.

Wells Machine & Tool Co., R. W., Chicago.—Power saws, grinders and sheet metal cutters.—Represented by R. W. Wells.

Westinghouse Air Brake Co., Pittsburgh, Pa.—Represented by L. Wilcox.

Williams & Co., J. H., Brooklyn, N. Y.—Wrenches, tool holders, lathe dogs, pipe wrenches.—Represented by P. E. Thomas and W. C. Teare.

The following officers were elected for the calendar year 1921: President, Clarence L. Mellor, Barco Manufacturing Company, and secretary and treasurer, A. W. Clokey, American Arch Company, Chicago. A. C. Beckwith, Ohio Injector Company, and W. J. Schlacks, Locomotive Lubricator Company, were elected to serve on the executive committee for three years.

National Safety Council's Ninth Annual Congress

Final arrangements have been completed for the Ninth Annual Congress of the National Safety Council, which will be held at the Auditorium, Milwaukee, Wis., from September 27 to October 1, inclusive. The program for the sessions of the Steam Railroad section has been arranged as follows:

WEDNESDAY MORNING

September 29, 9:30 o'clock

Chairman, Robert Scott, superintendent, insurance and safety, Atlantic Coast Line. Wilmington, N. C. Secretary, H. M. Mayo, superintendent of safety, Southern Pacific, Houston, Tex.

Report of Chairman.
Report of Secretary.
Reports of Committees.
Appointment of Nominating Committee.

Address—W. M. Jeffers, general manager, Union Pacific, Omaha, Neb.

"Safety and Time Service"—Webb C. Ball, general time inspector, Bureau of Railroad Time Service, Cleveland, Ohio.

"Co-operation with Railroad Labor Organizations"—Isaiah Hale, safety superintendent, Atchison, Topeka & Santa Fe, Topeka, Kan.

THURSDAY MORNING

September 30, 9:30 o'clock

"Shop Accidents"—J. A. McNally, safety agent, Wabash, St. Louis, Mo.

"Economic Phases of Railway Safety Work"—Samuel O. Dunn, editor, *Railway Age*, Chicago.

"Transportation Accidents"—C. H. Baltzell, superintendent, St. Louis-San Francisco, Fort Smith, Ark.

THURSDAY AFTERNOON

September 30, 2:30 o'clock

Round Table

Chairman, Harry A. Adams, Bureau of Safety, Interstate Commerce Commission, Washington.

"Use of Statistics in Connection with Safety Work"—Discussion led by J. C. Clark, assistant to general manager in charge of safety, regonO Short Line, Salt Lake City, Utah.

"Competition in Safety Work"—Discussion led by R. C. Richards, president, National Safety Council, Chicago.

"Duty of Safety Committee Members"—Discussion led by Marcus A. Dow, general safety agent, New York Central, New York.

FRIDAY MORNING

October 1, 9:30 o'clock

Report of Nominating Committee

"Maintenance of Way and Motor Car Accidents"—Arthur Ridgway, assistant chief engineer and safety officer, Denver & Rio Grande, Denver, Colo.

"Safety Work of the Interstate Commerce Commission"—W. P. Borland, Chief of Bureau of Safety, Interstate Commerce Commission, Washington.

"Public Safety"—C. M. Talbert, director, Department of Streets and Sewers, City of St. Louis, Mo.

Traffic News

A partial advance summary of traffic statistics for Class I steam railroads for the month of July, given out by the Interstate Commerce Commission, shows a total of 23,434,000,000 net ton miles, as compared with 20,391,000,000 for July, 1919. The summary covers 149,000 miles of road. Reports are expected from 58 additional roads.

The New York State Public Service Commission, second district, has suspended until December 10 proposed increases in the freight rates on peaches. Complaint was made by large shippers in western New York and the Commission held that if the proposed advance had been made known to the Commission thirty days earlier, these growers would have shipped practically their entire crop of peaches before the increased rate would have gone into effect.

Freight loading on the lines of the principal railways of the southern states for the six weeks ending August 21 surpassed all records. The total number of cars loaded in the six weeks this years was 795,397, as against 716,294 in 1919, and against 737,904 in 1918, when every nerve was strained to move the traffic incident to the war. Weekly records show an increase of over 12,000 cars a week in August over July, indicating a progressive improvement for this year as well as increases over last year and the year before.

The National Industrial Traffic League will hold its fall meeting at the Seelbach Hotel, Louisville, Ky., on September 30 and October 1. The docket for the meeting will be distributed this week, giving in detail the subjects to be considered. Members have been urged to notify the assistant secretary of non-members invited to the meeting, as the organization is desirous of issuing invitations and a copy of the docket to these prospective members. It is urged that all planning to attend make hotel reservations promptly.

Officers of transcontinental lines and the West Coast Lumbermen's Association recently reached an agreement for a joint conference on the permanent freight tariffs which the carriers will file with the Interstate Commerce Commission. The meeting was arranged in an effort to adjust the controversy between Northwestern lumbermen and the transcontinental railroads over the application of the freight rate increases. The conference, as announced by Robert B. Allen, secretary-manager of the lumbermen's association, stated that the meeting will convene in Portland, Ore., at a date to be agreed upon after both carriers and shippers have had opportunity to put their problems in definite form. According to Mr. Allen "the arranging of this conference has inspired the lumber industry with the hope that it may result in a re-establishing of competitive conditions which will permit West Coast shippers selling in long-haul markets on an approximately equal basis with the short-haul producers."

Coal Production

The production of soft coal declined again during the week ended September 4, according to the weekly bulletin of the Geological Survey. The total output is estimated at 11,051,000 net tons, a decrease of 3 per cent as compared with the preceding week. The cause of the decrease is said to be not yet clear. Reports of loadings by individual railroads showed that the decrease centered in the Northern Appalachian region. Production during the first 211 working days of the year has been 358,464,000 net tons, which is over 51 million tons ahead of that for the corresponding period of 1919, 14½ million tons behind the record for 1917 and 40½ million tons behind 1918.

With the suspension of work at many collieries in the anthracite region, the bulletin says, hard coal has displaced soft coal for the time being as the center of interest and concern. The week's production represents three days when many collieries were closed by the strike. Cars of anthracite loaded by the nine principal carriers are reported as 21,103, a decrease of 40 per cent as compared with the preceding week. The cumulative production of anthracite from January 1 to September 4 was 58,614,000 net tons, an increase of 4.7 per cent as compared with the corresponding period of 1919, but less than that for 1918 or 1917.

For the week ended August 28 an improvement in car supply was reported in many districts. The percentage of full time output lost on account of transportation disability is estimated at 24.4 per cent. Lake dumpings declined slightly during the week ended September 4 and the cumulative lake movement from the opening of the season now stands at 12,084,000 tons, about 33 per cent behind 1918 and about 28 per cent behind 1919. The movement to tidewater also slackened perceptibly during the week ended September 4.

Packers Want More Coal

A complaint against the order issued by the Interstate Commerce Commission giving priority in the supply of cars for coal for public utilities has been made to the Interstate Commerce Commission by the American National Live Stock Association, the American Institute of Meat Packers, and various other packing and live stock organizations. Complainants say, in a telegram: "* * * order classifying packers as non-essential is threatening serious curtailment of the supply of coal essential to the maintenance of refrigeration and the continued operation of killers. No more essential industry exists and any order interrupting the movement of stock to markets will result in tremendous losses to all concerned." The telegram urges that preferential classification be accorded the packing industry.

Illinois Central Calls Attention to Its Record

As part of an intensive campaign to cultivate the good will of the public, C. H. Markham, president of the Illinois Central, recently inserted in newspapers and publications along that line, an advertisement headed, "Illinois Central Proudly Calls Attention to Its Record." The purpose of the advertisement is to refute the impression that the railroads are not functioning efficiently. In this connection Mr. Markham said: "If this talk were to the effect that the railroads are facing the task of attempting to move a greatly increased volume of traffic with an impaired and insufficient plant, or that the railroads have not kept pace with the growth of the country, it would do no harm, because it would be true, but any statement to the effect that the railroads have not been doing their utmost and are not at the present time doing their utmost with the facilities with which they have to work, must not be permitted to go unchallenged."

In answer to the criticism, Mr. Markham presented a statement of the gross ton miles of freight handled by the Illinois system per year for the last ten years and the number of passengers carried one mile per year for the last ten years as follows:

	Gross ton miles of freight		Passengers carried one mile
1910	21,297,062,271	1910	745,818,345
1911	21,889,824,779	1911	811,282,510
1912	21,531,250.666	1912	807,969,807
1913	24,391,106,507	1913	815,812,320
1914	24,365,570,056	1914	832,881,282
1915	24,893,278,841	1915	747,797,713
1916	27,704,768,863	1916	850,797,693
1917	31,302,858,783	1917	982,111,873
1918	34,227,609,231	1918	1,026,898,494
1919	28,740,018,000	1919	1,142,044,011
1st 6 months, 1920.	17,568,332,000	1st 6 months 1920.	568,884,894

In conclusion Mr. Markham said: "The Illinois Central is but one railroad system out of many. I do not claim that its performances are any exception to the rule. No doubt many railroad systems have done as well, and perhaps some have done better. The Illinois Central personnel is anxious to serve the public even better in the future, and very earnest efforts are being put forth in that direction, but I hope our patrons fully appreciate that it will take time to restore our equipment and enlarge our facilities. I promise them that no time will be wasted. Constructive criticism and suggestions are invited."

Commission and Court News

Interstate Commerce Commission

The Commission has authorized carriers and their agents to file, on one day's notice, special supplements correcting errors that have occurred in the special supplements filed for the purpose of putting into effect the increases in rates allowed in Ex Parte 74.

The Interstate Commerce Commission has rendered its decision in the case of the Natchez Chamber of Commerce v. Louisiana & Arkansas Railway Company, et al., holding that rates on certain commodities between Natchez, Miss., on the one hand and points in western Louisiana on the other relatively higher than the commodity rates applying between points within western Louisiana subject Natchez to undue prejudice and disadvantage. Reasonable rates to be established for the future are prescribed and the undue prejudice is ordered to be removed.

The Commission has reopened for further hearing, Ex Parte No. 73, on petition of the Tidewater Coal Exchange and the Sewalls Point Coal Exchange. The commission is asked to give a further hearing concerning the extension of credit in connection with demurrage assessed under the average agreement on pooled coal. The practice has been for the carriers to render a statement to petitioners at the close of each calendar month for each port or pier; the petitioners then apportion to their members their respective proportions of the demurrage charges and the amount is then remitted, after being collected, by petitioners to the carriers within 30 days from the presentation of the carriers' statement. The case is reopened solely upon the question of the propriety and lawfulness of the above-described extension of credit.

Federal Inquiry on New York Intrastate Rates

Wilbur La Roe, Jr., examiner, held a hearing in New York City, on September 13, on the application of the New York Central and other roads for a review of the recent action of the Public Service Commission of the State, second district, in refusing to allow intrastate rates to be advanced to correspond with the freight and passenger rates recently authorized for interstate traffic.

L. V. Porter, assistant controller of the New York Central, presented a statement, on behalf of the principal roads doing business within the state, to the effect that failure to secure authority to make the desired advances would mean a difference of probably $12,000,000 annually in the receipts of the roads in question.

C. L. Hunter, assistant to the chairman of the Trunk Line Association, called attention to the fact that passengers could save $3 or $4 on trips to Cleveland, Chicago and points beyond by first purchasing tickets to Buffalo and then buying tickets for their destination. On a sleeping-car trip to Cleveland made in this way a saving of over $3 could be made on the Pullman and railroad fares. As matters now stand, competing lines which run from New York to Buffalo partly through other states (the Delaware, Lackawanna & Western and the Erie) will have to reduce their rates to meet the rate on the New York Central.

Ledyard P. Hale, counsel for the State Public Service Commission, declared that the state would insist on its right as a sovereign power to fix intrastate rates, indicating that an appeal would be taken to the United States Supreme Court. He quoted the Tenth Amendment to the Constitution of the United States and said that the sovereign rights guaranteed therein would be insisted upon.

Edward C. Griffin, deputy attorney general, appeared for the state.

A delegation from Queens Borough, New York City, protested against any increase on the Long Island Railroad. It was charged that the passenger rates now in effect on that road are now from 20 to 25 per cent higher than those of other roads.

Court News

Negligence at Station Barring Recovery for Injury

A woman at a station to meet her husband, on hearing a whistle and seeing a train approaching on tracks which curved, so that she could not tell which track it was on, assumed it was coming on the fourth track, whereas it was on the first. She was struck in attempting to pass through a gate between the first and second tracks and killed. In an action for her death the Wisconsin Supreme Court held that the deceased's negligence was the cause of her death, for which there could be no recovery.—Jacky v. McAdoo (Wis.), 177 N. W. 885.

Failure to Warn Not Proximate Cause of Injury

In an action for killing a mare at a crossing, the Texas Court of Civil Appeals holds that the mare having been killed by a train while she was caught in a cattle guard at the crossing, the negligent failure of the railroad's employees to sound the statutory warnings for the crossing could not be the proximate cause of the killing. The railroad could not fence its track at the crossing, and the burden was on the plaintiff to show that negligence on the part of the company was the proximate cause of the killing.—Hines v. Collins (Tex.), 221 S. W. 1108.

Trespasser Touching Electric Wire

The Circuit Court of Appeals, Second District, holds that a railroad company which maintained an electric feed wire alongside its track, 29 inches from an abutment where it passed under a highway bridge 22 feet above the track, is not chargeable with negligence rendering it liable for the death of a boy 10 years old, who climbed on the abutment and then, through an opening in the wire screen above it touched the wire with a tin can, so that the current entered his body; there being no reasonable ground to anticipate the child's action.—Heller v. New York, N. H. & H., 265 Fed. 192.

Statutory Penalty and Compensatory Damages Distinguished

Under the Missouri statute imposing a penalty of from $2,000 to $10,000 in the discretion of the jury on railroad companies negligently killing any person with their locomotives or cars, the Missouri courts hold that the sum of $2,000 is a penalty, and the remainder up to $10,000 is compensatory. If the petition in an action for death alleges no facts warranting compensatory damages, evidence of such damages is inadmissable, and the statutory penalty of $2,000 is the limit of the amount recoverable.—Rollinson v. Lusk (Mo.), 217 S. W. 328.

Unforeseen Shortage of Refrigerator Cars

The tariff of an interstate carrier gave a shipper the option of shipping fruit at his own risk of freezing or at carrier's risk under an increased rate. The Supreme Court of the State of Washington holds that the carrier, not having a refrigerator car, on account of an unprecedented and unforeseen shortage, was not required to make a shipment in an ordinary box car at its own risk, notwithstanding a clause in a supplement to the tariff defining "perishable freight" to include "any article requiring protection from cold, either by use of refrigerator or other insulated car, by artificial heat, or by both," etc.—Pacific Fruit & Produce Co. v. Northern Pacific (Wash.), 186 Pac. 852.

Last Carrier's Responsibility for Loss of Baggage

On a certified question by the Court of Appeals, the Georgia Supreme Court holds that where a passenger buys a through ticket over a line of railroads, having a coupon attached for each road, and checks his baggage through to his destination, if upon his arrival it is found to be lost, he may hold the last road of the line responsible therefor, whether the last road actually received the baggage or not (following S. F. & W. v. McIntosh, 73 Ga. 532)—Central of Georgia v. Dean (Ga.), 101 S. E. 771. Note.—This is contrary to the general rule in other states, which is to the effect that proof of the mere failure of the last carrier to deliver

the baggage, without proof that it ever came into its hands, will not entitle the passenger to recover from such last carrier. Kessler v. N. Y. C., 61 N. Y. 538; Stimson v. Connecticut River, 98 Mass. 83; Felder v. Columbia & Greenville, 21 S. Car. 35; Texas & New Orleans v. Berry, 31 Tex. Civ. App. 3.

Liability for Injury from Act of Another Passenger

The New York Appellate Division holds that a railroad company is not liable to a female passenger for injuries resulting from a bag being accidentally dropped on her hand by an immigrant, when he and other immigrants were being transferred from the smoker to the day coach in which the passenger was riding. There was no evidence of misconduct or disorder on the part of the immigrants. Haste and rudeness alone will not justify a carrier in excluding persons with proper tickets from day coaches occupied by other passengers. It is not liable for some rude act of a passenger which it could not fairly anticipate.—Hershey v. N. Y., O. & W., 189 App. Div. 270, 179 N. Y. Supp. 396.

Railroad Not Liable for Automobile Accident at Overpass Through Defect in Roadway

The Supreme Court of the State of Washington holds that under the statute of 1913 providing that, when a highway crosses a railroad by an overcrossing, the framework and abutments shall be maintained by the railroad, a railroad was not liable for the death of an automobile driver at an overpass above the railroad's tracks at a sharp curve in the highway, the fall of the car having been caused by the grade of the roadbed or an insufficient guard rail. In the statute "framework" is used in contradistinction to the roadway, so that everything above the framework and abutments would be part of the roadway, which would include the flooring and everything above that.—Pridmore v. Northern Pacific (Wash.) 186 Pac. 862.

Proceedings by Commission to Compel Railroads to Install Interlocking Plant

In mandamus proceedings by the Missouri Public Service Commission to compel the Missouri Pacific and the St. Louis-San Francisco to comply with its order for the installation of an interlocking plant and to divide the expense, the Missouri Supreme Court holds that such order is full authority for the Missouri Pacific to proceed to perform its duties, and mandamus was not necessary to give it access to the Frisco's right of way for the purpose of constructing the plant. If the Frisco should fail to pay the sums becoming due under the order, the Missouri Pacific may invoke proper means to collect, if under the law and facts collection is possible; but mandamus lies at the instance of the commission only against the Missouri Pacific to compel the construction, and not against the Frisco, as well to determine its liability to pay.—State v. Missouri Pacific (Mo.), 218 S. W. 310.

Reservation of Private Farm Crossing Defined

In an action against a railroad for fatal injuries to a boy struck by a train at a private crossing at Fall River, the controlling question was whether the boy was an invitee or merely a licensee in walking across the track. Originally the crossing was laid out as a private farm crossing under a reservation in the deed from the grantor. After the grantor's death, a summer colony came to occupy part of the farm, for which the right was reserved, and the members of which used the crossing. The Massachusetts Supreme Judicial Court held that, assuming the reservation was not merely for the grantor's lifetime, but was intended to continue for the benefit of portions of the farm cut off by the railroad, it could not be extended by implication so as to embrace within the scope and obligation of the railroad's "invitation" the residents of this large summer colony, the existence of which was not contemplated when the deed was executed. The boy when injured had therefore only the rights of a licensee. In using the crossing he went at his own risk. The railroad would be liable only in case it injured him intentionally or wantonly. Judgment for the railroad was affirmed.—Berube v. New York, N. H. & H. (Mass.), 125 N. E. 629.

Agent Consignee, Given Credit for Freight, Liable for All Charges

The Circuit Court of Appeals, Fifth Circuit, holds that a live stock commission merchant who has an arrangement whereby stock consigned to him is delivered and the freight charged to his account, which he settles later, cannot avoid liability for a proper charge in connection with a shipment (in this case for disinfecting cars) on the ground that he was known to be merely an agent, and that he had settled with the shipper before he knew of the charge. Having got possession of the cattle by agreeing to pay the railroad what was due on them, it is immaterial whether or not he was the owner, or whether he would or would not have been liable for the freight and other lawful charges thereon, if deliveries had not been made to his credit.—Rice v. Louisville & Nashville, 264 Fed. 427.

Safety Appliance Act—Couplers and Drawbars Proximate Cause of Injury

The New York Court of Appeals holds that the federal Safety Appliance Act was intended to obviate the necessity of men going between the ends of cars, but not to provide a place of safety between colliding cars. A car without a coupler was standing on a siding, a brakeman was riding on a second car, kicked on the same siding, a collision occurred and the brakeman was crushed between the two cars. There was no attempt to couple on to the defective car or to handle it in any way. It was held that under such circumstances the brakeman was not one of those for whose benefit the Safety Appliance Act was passed. The collision was not the proximate result of the absence of the coupler. Their presence was not required so that they might act as bumpers.—Lang v. N. Y. C. (N. Y.) 125 N. E. 681.

Liability for Consequential Damages for Delay Released by Clause in Bill of Lading

The New York Appellate Division holds that a carrier may limit its liability for negligence, where the shipper receives a consideration therefor; and that liability for consequential damages from mere delay in transportation is released by a provision in a bill of lading that the amount of any loss or damage for which the carrier may be liable shall be computed on the basis of the value of the property at the place and time of shipment It was held that the shipper could not recover the amount of the increase in the rate of freigt for ocean transportation, on a shipment from Schenectady to New York, the bill of lading of which contained notations showing the freight was intended for export to South Africa. —American Locomotive Co. v. New York Central, 179 N. Y. Supp. 851.

Statute Requiring Elevation of Track Held Unconstitutional

While a state may, under its police power, require a railroad to change its tracks when necessary for the protection of life or for the good of the public generally, there must be fair and reasonable grounds for it, and the acts required to be done must have some effective relation to the end sought to be accomplished, and a state may not arbitrarily select a particular railroad company and require it to raise its tracks at a particular place for the alleged purpose of preventing the obstruction of traffic by overflow where the track is subject to overflow at the same time at other places, and where other roads through the state are subject to the same obstruction. Applying these rules, the federal district court for the Eastern District of Arkansas holds that the Arkansas Act of 1919, requiring the St. Louis & Western to raise its roadbed within the Clarendon levee district, at a cost of upwards of $150,000, is unconstitutional, as it would not aid in preventing interruption of traffic, because the track for three miles beyond was upon a trestle and subject to the same overflow.—Hines v. Clarendon Levee Dist., 264 Fed. 126.

Foreign Railway News

Railway Equipment Developments in Germany

LONDON.

The Rheinische Metallwaren and Maschinenfabrik has gone into the construction of railway cars and locomotives in a very similar way to the Krupp plant. It has recently completed its first locomotive together with a freight train of 30 cars.

This company before the war did practically nothing but munition work, supplying all countries of the world. It is estimated that this concern will soon be able to manufacture 400 locomotives and 3,000 freight cars a year.

Exports of Steam Locomotives in May

The exports of steam locomotives in July totaled 134, valued at $4,742,306. Of these, 37, valued at $1,797,040, were destined for Poland and 35, valued at $1,050,000, for France. The detailed figures by countries, as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce, are as follows:

COUNTRIES EXPORTS OF STEAM LOCOMOTIVES IN JULY

Countries	Number	Dollars
Belgium	12	663,000
France	35	1,050,000
Poland and Danzig	37	1,797,040
Canada	5	29,525
Mexico	1	17,500
Cuba	4	85,570
Argentina	1	16,720
Chile	11	265,196
Venezuela	1	8,865
China	13	660,575
British India	3	39,000
Japan	2	15,010
Philippine Islands	9	94,305
Total	134	4,742,306

Standard Railway Gage in Australia

LONDON.

The Board of Trade Journal is authority for the statement that at a conference between the engineer-in-chief of the Australian Commonwealth railways and the engineering experts of the railways of the various states, it was decided that the standard gage of 4 ft. 8½ in. was the most suitable for adoption.

In 1913 the estimated cost of unification was £37,164,000 (or about $148,656,000 at the present rate of exchange), but since that date the track mileage has been considerably increased, while the cost of material has nearly doubled, so that the cost of unification will be a very serious matter for the states other than New South Wales, which now has standard gage lines. At the premiers' conference it was proposed to proceed with the work, the commonwealth contributing one-fifth of the cost, and the states four-fifths, on the basis of population.

The trial of the third rail system which recently took place at Tocumwal was a success and it is claimed that through trains could be run over the whole of Australia without disturbing any of the existing tracks. The estimated cost of a third rail installation is £3,500,000 (or $14,000,000 at the present rate of exchange), and the time of completion is stated to be 18 months.

French Railway Progress—Fuel Oil

LONDON.

Previous news items have told of the desire of the French railways to use fuel oil called "Mazout" as fuel for locomotives. Both the Paris, Lyons & Mediterranean and the Paris-Orleans have made successful experiments with oil burning locomotives and the number of locomotives to be equipped for burning oil depends in a large measure on the amount of oil France can obtain. Under present conditions it appears that some difficulty will be experienced in this respect. Mazout is a residue of the crude oil which is of a little heavier consistency than that termed as "fuel oil" used in the United States.

M. Pouillon, an engineer of the Paris, Lyons & Mediterranean, in a recent article in the Revue Generale des Chemins de Fer tells of experiments made on that road, as a result of which it is planned to equip some 90 locomotives for burning oil provided that sufficient oil can be obtained. In speaking of the economies resulting from the use of this fuel, M. Pouillon states that with Mazout at 550 francs (or about $41 at the present rate of exchange) per ton, there is a possible annual saving, on 35 locomotives, of 300,000 francs (approximately $22,500 at the present rate of exchange), considering coal at 330 francs (about $25). He estimates that it will cost 4,000 francs (approximately $300) to equip each locomotive for burning oil or for 35 locomotives 150,000 francs ($11,250). In addition to this there will be an expense of 300,000 francs ($22,500) for providing the necessary installations for handling the oil. Thus the expense of providing equipment for 35 locomotives will be 450,000 francs ($33,750), as against an annual saving of 300,000 francs, which means that under the price of Mazout above mentioned the use of fuel oil will pay for itself on 35 locomotives in a year and a half, but as mentioned above the chief difficulty in the proposition is procuring the oil—and this is believed to be very great.

Exports of Car Wheels and Axles in July

The exports of car wheels and axles in July had a total value of $1,476,881. Over half of this total represented exports to France and large shipments were made to Argentina. The detailed figures by countries as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce are as follows:

EXPORTS OF CAR WHEELS AND AXLES

Countries	Dollars
Belgium	10,710
France	759,671
England	19,179
Canada	85,472
Costa Rica	880
Guatemala	973
Honduras	4,804
Nicaragua	659
Mexico	17,769
Jamaica	397
Trinidad and Tobago	34
Other British West Indies	880
Cuba	19,784
Dutch West Indies	163
Dominican Republic	1,160
Argentina	264,803
Brazil	25,573
Chile	2,802
Colombia	2,835
Ecuador	139
Dutch Guiana	252
Paraguay	128
Peru	23
Venezuela	182
China	48,525
Kwantung	71,245
British India	7,368
Dutch East Indies	25,996
Japan	66,914
Siam	177
New Zealand	4,095
Philippine Islands	33,289
Total	1,476,881

German Railways' Revenues and Expenditures

LONDON.

The Board of Trade Journal in a recent issue gives the figures published in Germany of the expenses and the revenues of the railways during the war, the revolutionary period and since the armistice. During the last peace year the expenses, amounting to 2,345,000,000 marks, were covered by a total revenue of 3,347,000,000 marks, an increase of about 43 per cent. In the course of the following three war years the expenses and revenues increased, but the expenses never surpassed the revenues. In 1915 the receipts were 3,268,000,000 marks and the expenses 2,338,000,000 marks, giving a difference of about 40 per cent. In 1916 the receipts amounted to 3,805,000,000 marks and expenses to 2,724,000,000 marks, a difference of 40 per cent, and in 1917 the receipts amounted to 4,435,000,000 marks and expenses 3,648,000,000 marks, a difference of 21.6 per cent. The year of the revolution ended with an increased total of revenues amounting to 4,617,000,000 marks, but in this case the expenses overran the receipts by 1,324,000,000 marks, or 28.7 per cent, to 5,941,000,000 marks. During the year 1919, in spite of the increase in passenger rates, the expenses were 11,040,000,000 marks, which again exceeded the revenues by 4,366,000,000 marks, or 65 per cent.

For the current year the revenues are estimated at 14,344,000,000 and the expenses are set at 16,935,000,000 marks.

Exports of Railway Track Material in July

The exports of rails in July totaled 51,869 tons, having a value of $3,329,530; of spikes, 2,845,462 lb., of a value of $123,574, and of switches, frogs, splice bars, etc., of a value of $735,726. The detailed figures by countries, as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce, are as follows:

EXPORTS OF RAILWAY TRACK MATERIAL IN JULY

Countries	Spikes		Steel rails		Switches, frogs, splice bars, etc.
	Pounds	Dollars	Tons	Dollars	Dollars
Denmark	.....	.....	2,253	94,186	.....
France	.....	.....	.....	.....	2,391
Norway	.....	.....	.....	.....	500
Roumania	.....	.....	888	48,980	7,383
Spain	.....	.....	1,399	97,787	17,529
Sweden	.....	.....	3,605	337,500	.....
England	.....	.....	427	22,080	3,513
Canada	7,032	450	524	34,110	38,795
Costa Rica	10,000	781	.....	.....	1,794
Guatemala	1,400	75	.....	.....	880
Honduras	30,000	1,820	.....	.....	2,665
Nicaragua	16,200	883	47	2,400	.....
Panama	4,000	105	.....	.....	16
Salvador	.....	.....	785	50,674	2,733
Mexico	99,924	5,593	410	24,562	38,995
Jamaica	2,500	305	37	2,441	2,883
Trinidad and Tobago	50,800	4,819	.....	.....	.....
Cuba	786,026	29,254	11,344	685,552	59,175
Dominican Republic	26,700	1,758	.....	.....	.....
Argentina	.....	.....	2,700	127,116	1,159
Bolivia	.....	.....	.....	.....	2,304
Brazil	135,136	7,181	939	57,197	2,870
Chile	177,000	6,113	1,452	99,147	47,879
Colombia	18,000	1,139	1,048	56,021	27,446
British Guiana	.....	.....	.....	.....	1,568
Peru	40,340	2,284	474	29,770	4,722
Uruguay	.....	.....	97	6,591	2,109
Venezuela	16,422	1,033	50	3,000	1,439
China	15,445	585	2,533	156,165	234,978
British India	.....	.....	1,116	63,994	.....
Straits Settlements	.....	.....	513	33,339	2,926
Dutch East Indies	4,720	408	4,236	269,344	26,813
Hongkong	.....	.....	39	1,316	640
Japan	1,152,150	45,181	13,632	920,048	166,096
New Zealand	.....	.....	.....	.....	114
Philippine Islands	251,667	13,807	1,273	102,920	31,444
British South Africa	.....	.....	48	3,290	367
Portuguese Africa	.....	.....	.....	.....	1,600
Total	2,845,462	123,574	51,869	3,329,530	735,726

Transportation Crisis in Roumania

The outstanding features of the present economic position in Roumania are the deficiency of internal transport, the small amount of exports, and the low exchange value of the Roumanian lei, writes Trade Commissioner L. D. Wilgress in the Weekly Bulletin of the Canadian Department of Trade and Commerce. These three factors are closely inter-related with one another, but the transport crisis may be said to be the fundamental problem now confronting the country. The exchange situation renders ordinary trade with Roumania almost out of the question for the present, since it is evident that with the lei quoted at between two and two and a half cents as compared with a par value of 19.3 cents, Roumanian importers can only pay cash for goods absolutely essential. Credit therefore becomes for a time an important consideration in the promotion of business relations with reliable Roumanian firms and organizations. Negotiations are also in progress with a view to the exchange of products on a barter basis. It is necessary to carefully inquire into these questions and also as to how long the present situation is likely to continue. Attention should first be directed to the important matter of internal transport.

LACK OF LOCOMOTIVES

The transport crisis is chiefly due to the deficiency in the number of locomotives in good working order. Before the war there was a railway system of 2,200 miles in Old Roumania, for the needs of which 1,000 locomotives sufficed. At the present time Greater Roumania has a network of 4,200 miles of railway and the number of locomotives is 1,965, of which about 550 are in service. Only about 200 of these, however, are in good working order. When the Germans and Austrians evacuated Roumania they took with them most of the locomotives in running order. The Roumanians later obtained many locomotives and other rolling stock from Hungary during their occupation of that country, but these locomotives have been for the most part useless, since they are not adapted to burning oil, the chief fuel used on the Roumanian railways, and the majority are also badly in need of repairs.

Roumania has not proper facilities for effecting heavy repair work of the kind needed to restore most of the idle locomotives to working efficiency. The policy has lately been adopted of giving two or three locomotives at a time over to the private workshops belonging to the oil and industrial companies, and in this way a great deal of repair work has been done, although for the most part of a temporary character. The large works near Temisoara, formerly operated by the Hungarian State Railways, are also being utilized for repair work and for converting into oil burners the locomotives obtained from Hungary last year. There has been a shortage of materials, although a large amount of necessary supplies were brought in under the credit for £500,000 accorded by the British government. A British railway commission has been in Roumania for several months studying the situation and recommending what supplies should be obtained under the credit referred to. This commission is now winding up its affairs.

Nearly all the railway bridges destroyed by the Germans on leaving the country have been temporarily repaired by the Roumanians, so that trains can be operated without interruption. The long bridge over the Danube on the line to Constantza, which was blown up by the Roumanians in 1916, has, however, not yet been repaired, and trains have to cross the damaged section on pontoons.

A noticeable improvement in the operation of the railways has recently been effected as a result of the above measures, but the facilities provided are still far from being sufficient to cope with the demands for transport. There is no lack of railway cars, although passenger cars are mostly without window glass and otherwise badly in need of repairs. The government has now decided that it is necessary to purchase new locomotives, and tenders are being called for. An order for 50 locomotives has been placed with the Baldwin Locomotive Works of America and deliveries of ten a week are to commence in July, 1920. Payment is to be made in six months in either oil or dollars. As soon as the government can secure the necessary funds abroad, other orders are to be placed for locomotives up to about 500, which is considered the minimum number required for the present. Parts and accessories for locomotives and railway tools, as well as clothing aand other articles for the use of the railway personnel, are also to be purchased abroad.

EFFECT OF THE TRANSPORT CRISIS

The receipt of new locomotives should greatly relieve the present crisis. The disorganization of the railway services has practically paralyzed the economic life of Roumania. The exportable products of the country cannot be moved readily to the ports or neighboring countries, while it is frequently a matter of months for import consignments to be transported to Bucharest from the ports of Galatz and Constantza. Great difficulty has been experienced in moving the crops, and this applies not only to the surplus exportable products of the country but also to supplies for the consuming centers. The oil industry has been greatly handicapped by the lack of transport. Drilling operations have been largely suspended owing to the difficulty of transporting materials and equipment, while oil for export has been blocked, although the reservoirs are full. Over 200,000 tons of oil products are at the refineries awaiting shipment. The suspension of drilling operations has resulted in a decrease in the daily production of crude oil since the armistice from 3,000 to 2,000 tons a day, and as compared with a pre-war production of 5,000 tons a day. Petroleum residue is the chief fuel for Roumanian industries, and factories have had to close down owing to the difficulty of obtaining fuel. Similarly there has been a shortage in the towns of fuel for heating purposes, although the oil fields are within a few miles of such cities as Bucharest, Braila, and Galatz. The transport crisis has also greatly affected the timber industry both in the Old Kingdom and in Transylvania, and there is a large quantity of sawn timber in the country which cannot be exported for lack of transport. The same applies to salt, which could be exported in almost unlimited quantities provided the transport facilities were available.

The ports of Galatz and Constantza are greatly congested with goods, and importers often have to wait several months before securing railway cars to transport their merchandise to the centers of consumption.

The above is a review of the present conditions of internal transport in Roumania. The government realizes that this problem is one of the most important now confronting the country and every effort is to be made to restore the operating efficiency of the railways. The chief difficulty is to secure the funds abroad wherewith to purchase the necessary materials and locomotives.

Negotiations are in progress for the raising of a foreign loan, and a measure has been passed for placing at the disposal of the government the funds resulting from the sale abroad of the exportable products of the country.

Exports of Cars in July

The exports of freight cars for steam railroads in July numbered 2,575, having a total value of $4,825,290, of which nearly one-half was represented by shipments to Poland, France and Cuba also received large shipments. The detailed figures by countries as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce are as follows:

EXPORTS OF CARS FOR RAILWAYS IN JULY

Countries	Steam: Passenger No.	Steam: Passenger Dollars	Steam: Freight and other No.	Steam: Freight and other Dollars	For other railways No.	For other railways Dollars	Parts of cars Dollars
Finland	....	....	...	.....	8	23,850	.....
France	....	....	810	1,675,092	...	.....	243,850
Poland and Danzig	....	....	1,200	2,315,000	...	.....	.....
Roumania	....	....	30	13,382	...	.....	.....
Spain	....	....	....	.....	...	.....	96,005
Ireland	....	....	....	.....	...	.....	660
Canada	....	....	34	27,759	63	56,202	130,780
Panama	....	....	....	.....	...	.....	516
Salvador	....	....	1	1,744	25	3,125	.....
Mexico	....	....	24	15,650	54	5,858	17,134
Newfoundland & Labrador	....	....	....	.....	...	.....	929
Jamaica	....	....	20	35,150	6	5,835	.....
Trinidad and Tobago	....	....	....	.....	...	.....	700
Other British W. Indies	....	....	....	.....	...	.....	775
Cuba	1	45,000	419	664,113	3	3,357	98,354
Dutch W. Indies	....	....	....	.....	...	.....	300
Argentina	....	....	20	31,893	...	.....	27,519
Brazil	....	....	....	.....	20	13,200	28,555
Chile	....	....	....	.....	...	.....	23,293
Colombia	....	....	....	.....	30	6,990	10,803
Paraguay	....	....	12	32,445	...	.....	6,000
Peru	....	....	5	13,062	...	.....	10,000
China	....	....	....	.....	10	900	247,404
Kwantung	....	....	....	.....	...	.....	23,849
British India	....	....	....	.....	...	.....	9,250
Other British E. Indies	....	....	....	.....	...	.....	90
Dutch E. Indies	....	....	....	.....	...	.....	7,775
Japan	....	....	....	.....	...	.....	106,228
New Zealand	....	....	....	.....	...	.....	11,570
French Oceania	....	....	....	.....	...	.....	990
Philippine Islands	....	....	....	.....	150	42,450	53,703
Total	1	45,000	2,575	4,825,290	369	161,767	1,157,032

The Atocha-La Quiaca Trade Route Between Bolivia and Argentina

The recent granting of a contract for the construction of the railway from La Quiaca in Argentina to Turpiza in Bolivia is of great importance in that this line will form another link in the chain which will eventually connect the Argentine and Bolivian railroad systems and furnish through communications between Buenos Aires and La Paz, writes Trade Commissioner W. L. Schurz in Commerce Reports. At present the 128 miles which lie between Atocha and La Quiaca, Turpiza being a midway point, must still be covered by mule, though the road is passable by automobile during a part of the year—from about the middle of May to about the middle of November.

In 1915 the Bolivian Government gave the contract for the construction of the Turpiza-La Quiaca section to a French house, the price stipulated to be £900,000 ($4,500,000). After this company had carried out some of the preliminary work on the line, it suspended construction operations, alleging war conditions as the reason for its inability to continue the work. During 1919 the Bolivian Congress annulled the contract with this company, and on May 12, 1920, granted the contract for the completion of the line to an Argentine firm. The conditions are practically identical with those of the original arrangement. It is said that $2,000,000 of the $10,000,000 loan recently contracted with a New York firm is to be used in the construction of this line.

The effect of the railway, when completed to Atocha, will undoubtedly be to strengthen greatly the commercial relations between Bolivia and Argentina. It will not only offer a better market to the products of the Provinces of Jujuy, Salta and Tucuman, but will furnish the means of importing manufactured goods into Bolivia from as far as Buenos Aires, a traffic that has hitherto been seriously handicapped by the difficulties of transport between the frontier and the Bolivian railhead at Atocha. It will thus enable Argentine manufactures to compete with those of Chile, as well as with American and European products.

Equipment and Supplies

Locomotives

THE PERE MARQUETTE is inquiring for some six-wheel switching locomotives.

THE NORTHERN PACIFIC TERMINAL has ordered 2 locomotives from the American Locomotive Company.

THE STANDARD OIL COMPANY OF INDIANA has ordered 5 Mikado locomotives from the American Locomotive Company.

THE COLUMBIA CHEMICAL COMPANY, Zanesville, Ohio, has ordered one saddle-tank locomotive from the Vulcan Iron Works.

THE CHICAGO & ALTON has ordered from the American Locomotive Company 5 Mikado type locomotives, with cylinders 26 in. by 30 in., and a total weight in working order of 292,000 lb.

THE CHICAGO & NORTH WESTERN has ordered 10, 150-ton Mikado type locomotives from the American Locomotive Company, in addition to the 30 ordered from this company and noted in the *Railway Age* of July 30.

JAVA STATE RAILWAYS.—The order for 82 locomotives, inquiry for which was reported in the *Railway Age* of July 9 as having been issued by the Colonial Department of the Netherlands Government, has been placed with the Krupp Works of Germany.

THE INTERNATIONAL RAILWAY SUPPLY COMPANY, 30 Church street, New York, purchasing agents for the American Railroad Company of Porto Rico, has ordered 2 switching locomotives from the Baldwin Locomotive Works, and 2 Consolidation type locomotives from the American Locomotive Company.

Freight Cars

THE SEABOARD AIR LINE is inquiring for 350, 50-ton hopper cars.

THE WESTERN PACIFIC is inquiring for 600 gondola cars of 50 tons' capacity.

THE MCKINNEY STEEL COMPANY, Cleveland, Ohio, is inquiring for 1, 50-ton, all-steel flat car.

THE SOUTH AFRICAN RAILWAYS are inquiring for from 250 to 500 cattle cars of 20 tons capacity.

THE DELANEY FUEL & IRON COMPANY, Buffalo, N. Y., is inquiring for 4 flat-bottom gondola cars.

THE AMERICAN RAILWAY EQUIPMENT COMPANY, Philadelphia, Pa., is inquiring for 100, 50- to 70-ton steel hopper cars.

THE INDIAHOMA TANK CAR COMPANY, Tulsa, Okla., is inquiring for 50 tank cars of 10,000 gal. capacity with 50-ton trucks.

THE CHESAPEAKE & OHIO has ordered from the Pressed Steel Car Company 1,000 hopper car bodies of 57½ tons' capacity.

THE BERTHA COAL COMPANY, Pittsburgh, Pa., has ordered 100, 70-ton steel hopper cars from the Ralston Steel Car Company.

THE CUBA CANE SUGAR CORPORATION, 123 Front street, New York, has ordered 150 cane cars from the Magor Car Company.

THE ANDREW STEEL COMPANY, Newport, Ky., is inquiring for 3, 75- to 90-ton steel copper-bottom cars and 6 self-clearing hopper cars.

T. E. SNYDER, Chicago, has ordered 5 tank cars of 8,050 gal. capacity, with 50-ton trucks, from the Pennsylvania Tank Car Company.

THE BALTIMORE & OHIO, reported in the *Railway Age* of August 20 as inquiring for 500 steel underframe refrigerator car bodies, has ordered this equipment from the American Car & Foundry Company.

THE MIDLAND REFINING COMPANY, Eldorado, Kan., is inquiring for 50, 8,000-gal. tank cars.

THE INTERSTATE PUBLIC SERVICE COMPANY, Crown Point, Ind., has ordered 15, 30-ton box cars from the Interstate Car Company.

THE COMMERCIAL CAR LINE, Chicago, has ordered 10 tank cars of 8,050 gal. capacity, with 50-ton trucks, from the Pennsylvania Tank Car Company.

THE FOCO OIL COMPANY, Franklin, Pa., has ordered 5 tank cars of 8,050 gal. capacity, with 40-ton trucks, from the Pennsylvania Tank Car Company.

THE CHESAPEAKE & OHIO is having repairs made to 500 gondola car bodies at the Huntington, W. Va., shops of the American Car & Foundry Company.

THE WAVERLEY OIL WORKS, Pittsburgh, Pa., has ordered 4, 4,500-gallon tank cars and 10, 10,000-gallon tank cars from the Pennsylvania Tank Car Company.

Passenger Cars

THE ILLINOIS CENTRAL has ordered 20 suburban passenger cars from the Pullman Company.

THE CHINA, JAPAN & SOUTH AMERICAN TRADING CORPORATION, LTD., 80 Maiden Lane, New York, is asking for prices on 35 steel passenger cars for export.

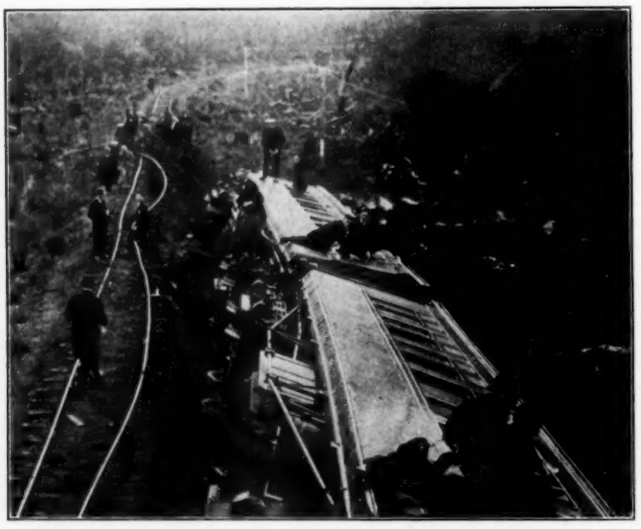
THE JONESBORO, LAKE CITY & EASTERN is inquiring for one good-conditioned, second-hand mail and express passenger car, the mail space to conform to government requirements, for postal cars.

THE DELAWARE, LACKAWANNA & WESTERN, reported in the *Railway Age* of July 16 as being in the market for 10 milk cars, has ordered this equipment from the American Car & Foundry Company.

THE PERE MARQUETTE, reported in the *Railway Age* of June 25 as being in the market for coaches and baggage cars, has ordered 12 all-steel baggage cars and 12 steel passenger cars from the Standard Steel Car Company.

Iron and Steel

THE WILKOFF COMPANY, 2315 Woolworth building, New York, is in the market for steel rails, including 10,000 tons of 50-lb. sections.



The Accident in Which the Prince of Wales Had a Narrow Escape While Traveling in Australia

Supply Trade News

George J. Lynch has resigned as sales manager of the Youngstown Steel Car Company, Niles, Ohio.

D. M. Brown has been appointed manager for Ontario, with headquarters at 342 Adelaide street West, Toronto, of the **Holden Company, Ltd.,** Montreal, Que., dealers in railway supplies.

J. C. Blanton, formerly for ten years manager of the Jacksonville Terminal Company, is now associated in a sales capacity with **Manning, Maxwell & Moore, Inc.,** 119 West Fortieth street, New York.

B. B. Milner, heretofore engineer of motive power and rolling stock of the New York Central, at New York, who has become associated with the Frazar importing and exporting interests, as was announced in the *Railway Age* of July 30, page 207, was born on November 5, 1881, at Hartford, Kans. In 1899 and 1900 he worked in the Parsons shops of the Missouri, Kansas & Texas, and later entered the mechanical engineering school of Purdue University, from which he was graduated in 1904. He then entered the service of the Pennsylvania as a special apprentice at Altoona. Here he also had much test department experience and charge of numerous special investigations having to do with freight train service. In 1907 he was in charge of arranging a complete revision of the machine tool layout at the Altoona shops, and later visited the principal railroad terminal points from the Atlantic to the Pacific in a study of operating and maintenance of equipment methods. In 1908 he served in the office of W. W. Atterbury, then general manager at Philadelphia, on various betterment studies and was engaged in the introduction of improved operating statistical information. He subsequently served in the same office in preparing the Pennsylvania Railroad's case in the arbitration of demands made by enginemen for increases in pay. In May, 1911, he was appointed assistant master mechanic of the Philadelphia, Baltimore & Washington (now the Southern division of the Pennsylvania), at Wilmington, Del. In October, 1913, he left the service of the Pennsylvania to go to the New York Central as special engineer on the staff of the senior vice-president, A. H. Smith, and was sent to the Cleveland, Cincinnati, Chicago & St. Louis to assist in re-establishing satisfactory operating conditions after the disorganization precipitated by the floods of that year. He continued as special engineer on the staff of Mr. Smith, who had been made president, and later was appointed engineer of motive power of the New York Central under Chief Mechanical Engineer R. B. Kendig. In addition to duties as engineer of motive power, he handled problems in connection with car department work and the organization and administration of the test department headed by the engineer of tests. On May 10, 1917, Mr. Kendig died and Mr. Milner took over his entire work through the war and United States Railroad Administration period. During the later half of 1918, or until after the armistice was signed, he assisted H. A. Worcester, the Ohio-Indiana district director, with headquarters at Cincinnati. When the railroads were returned to their owners for operation on March 1, 1920, he

B. B. Milner

was made engineer of motive power and rolling stock. Mr. Milner expects to sail in November for Japan, where he will become a member of the organization of Sale & Frazar, Ltd., in Tokyo, in the meantime maintaining office with Frazar & Company, 30 Church street, New York. Mr. Milner will devote his time to the railroad branch of the business.

Charles Whiting Baker, for many years editor-in-chief of Engineering News, and since 1917 consulting editor of the Engineering News-Record, announces his resignation and the establishment, under his direction, of the **Engineering Business Exchange,** 31 Nassau street, New York, an agency to bring together those desiring to sell any sound engineering or technical business — manufacturing, constructing, selling, or professional— and those seeking opportunities to purchase. Mr. Baker graduated as a civil engineer from the University of Vermont in 1886, and then, to 1895, served as associate editor of Engineering News, when he became editor-in-chief. From 1898 to 1911 he was also vice-president and director of the Engineering News Publishing Company. In 1917 he was appointed consulting editor of the Engineering News-Record. He has been a member of the American Society of Mechanical Engineers since 1893, and was vice-president of that society in 1909-1911. He served as vice-president of the American Society of Terminal Engineers in 1919-1920, and has been a member of the Engineering Council since its organization in 1917, representing the American Society of Mechanical Engineers.

C. W. Baker

The American Automatic Connector Company, Cleveland, Ohio, on October 1, will open offices and an exhibit room at 235 Railway Exchange building, Chicago, in charge of F. R. Bolles, vice-president and general manager.

S. W. Fries has been appointed district sales manager for Kansas City territory of the **Economy Fuse & Manufacturing Company,** Chicago, with offices at 1205 Commerce building, Kansas City, Mo. Mr. Fries succeeds R. P. Crawley, resigned.

The Schierbecker Tie & Lumber Company, St. Louis, Mo., has been reorganized and incorporated under the firm name of the **Central States Tie & Lumber Company. H. F. Schierbecker** is president and will have charge of the tie branch of the business, and **C. A. Neuenhan,** secretary and treasurer, will be in charge of the lumber department.

C. O. Deabler, who was tie and lumber agent of the Southwestern region of the United States Railroad Administration, and recently tie and lumber agent for the Missouri Pacific, has become associated with the **Abeles & Taussig Tie Corporation,** of St. Louis, Mo. Mr. Deabler and **J. A. Brewer** assumed charge of the lumber department on September 1.

Obituary

Joseph S. Ralston, president of the **Ralston Steel Car Company,** Columbus, Ohio, died in that city on September 11, at the age of 55.

John G. Talmage, president of the **Talmage Manufacturing Company,** Cleveland, Ohio, died very suddenly in Washington, D. C., on August 25. Mr. Talmage founded the company bearing his name in 1896 and was the active head of the same up to the time of his death. Mr. Talmage contributed many appliances in the development of the locomotive.

Railway Construction

ALABAMA & MISSISSIPPI.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Vinegar Bend, Ala., to Leakesville, Miss., and Pascagoula.

ATCHISON, TOPEKA & SANTA FE.—This company has let a contract to Jerome A. Moss, Chicago, for the construction of a water station at Galatia, Kan., together with a treating plant and a service tank.

ATCHISON, TOPEKA & SANTA FE.—This company and the California, Arizona & New Mexico have applied to the Interstate Commerce Commission for authority to abandon what is known as the Poland Branch, about five miles in length, located in Yavapai county, Ariz., which was built to serve a mine that has now been abandoned.

CANADIAN NATIONAL.—This company has let a contract to the Roberts & Schaefer Company, Chicago, for the installation of an electrically-operated Duplex patent shallow pit feeder in one of the deep pit plants constructed some years ago at Monk, Quebec, Canada.

CHICAGO, ROCK ISLAND & PACIFIC.—The Roberts & Schaefer Company, Chicago, will install a new electrically-operated, hoist-control apparatus at Atlantic, Ia.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has let a contract to the Railroad Water & Coal Handling Company, Chicago, for the construction of a complete water treating plant at Kellogg, Ia. The Rock Island has also awarded a contract to T. S. Leake & Co., Chicago, for the construction of an eight-stall roundhouse at El Dorado, Ark.

CHICAGO UNION STATION COMPANY.—This company is asking bids for the construction of a viaduct at Twelfth street, Chicago. The viaduct, which is part of the Chicago Union station project, will extend from Canal street to the Chicago river, and will be of re-enforced concrete construction.

CHICAGO & NORTH WESTERN.—This company has let a contract to the Allington Miller Company, Chicago, for the construction of a passenger station, 20 feet by 90 feet, of stucco construction, at Franklin Grove, Ill.

NORTH CAROLINA ROADS (Electric).—Surveys will be completed soon on the first 25 miles, and three-fourths of the right-of-way has been obtained for a proposed electric line to be about 82 miles long from Mt. Holly, N. C., via Denver, Newton, Hickory, Lenoir to Blowing Rock. Blowing Rock is a large summer resort and at present is 22 miles from a railroad from the east and about 10 miles from a railroad from the west. The present plans call for the construction of the line to Blowing Rock, later to connect with a railroad at Shulls Mill. J. D. Elliott is president and Dr. W. T. Shipp, Newton, N. C., is general manager.

THE DELAWARE, LACKAWANNA & WESTERN is building an extension of six stalls to its enginehouse at Port Morris, N. J., of brick and concrete construction. The work is being carried out by company forces.

SOUTH DAYTON RAILWAY.—This company has applied to the Interstate Commerce Commission for a certificate to authorize it to abandon 340 feet of track in Dayton, Ohio.

WESTERN PACIFIC.—A survey has been made for a line from a connection with the Indian Valley Railroad to Westwood, Cal., and Susanville, to tap the timber resources of that district.

PAPER HOPE IN ALASKA.—Alaskan forests contain a complete answer to the American newsprint shortage, in the opinion of Colonel W. B. Greeley, chief of the United States Forest Service, who recently returned from a month's inspection of timber and power resources of the Tongass National Forest. Alaska can produce 1,500,000 tons of paper annually "in perpetuity," according to Colonel Greeley.

Railway Financial News

BOSTON & MAINE.—Ernest Martin Hopkins, president of Dartmouth College, and Harry Hubbard Dudley, president of the Mechanics' National Bank of Concord, N. H., have been elected directors of the Boston & Maine, to succeed Theodore N. Vail and Benjamin A. Kimball, both deceased.

CHICAGO & WESTERN INDIANA.—The Interstate Commerce Commission has ordered a hearing at Washington on September 20 to this company's application for authority to issue not to exceed $7,500,000, 15-year, 7½ per cent collateral trust bonds and $1,000,000 of 15-year 6 per cent collateral trust notes.

CHICAGO, ROCK ISLAND & PACIFIC.—The Interstate Commerce Commission has ordered a hearing at Washington on September 22 on this company's application for authority to issue $1,000,000 of general mortgage gold bonds and $1,000,000 of first and refunding mortgage gold bonds.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—The Interstate Commerce Commission has ordered a hearing at Washington on September 21 on this company's application for authority to sell $770,000 of equipment trust certificates and to issue $950,000 of additional certificates.

DELAWARE, LACKAWANNA & WESTERN.—An application for approval by the Interstate Commerce Commission of a plan for the proposed segregation of the company's coal properties in Pennsylvania was filed with the secretary of the Interstate Commerce Commission on September 15, but was not made public on that date by the commission.

GULF PORT TERMINAL.—This company has taken exception to the denial of two applications to the Interstate Commerce Commission for a loan from the $300,000,000 fund provided by the transportation act and has made a further application for a loan of $300,000 as to which the commission has ordered a hearing at Washington on October 12.

KANSAS CITY, MEXICO & ORIENT.—The receiver has applied to the Interstate Commerce Commission for authority to issue $1,000,000 of receiver's notes bearing 6 per cent interest, to meet operating expenses.

MEMPHIS, DALLAS & GULF.—Martin Walsh, vice-president and general manager of this road, with headquarters at Nashville, Ark., was appointed receiver on September 10 by Judge Youmans in the United States District Court at Fort Smith, Ark. The receivership was granted on the petition of four St. Louis banks, which claim to hold obligations of the road in excess of $200,000. The road operates between Hot Springs, Ark., and Ashdown, 130 miles.

MISSOURI, KANSAS & TEXAS OF TEXAS.—This company has applied to the Interstate Commerce Commission for authority to issue equipment notes to the amount of $675,000, at 6 per cent, to be issued in part payment for 300, 50-ton, 10,000-gal., steel oil tank cars purchased from the American Car & Foundry Company.

NEW YORK CENTRAL.—At a hearing before Director Colston, of the Bureau of Finance, on September 10, George P. Whitney, of J. P. Morgan & Co., and J. E. Oldham, an investment banker of Boston, testified that the commission allowed to the bankers that handled the flotation of the $25,000,000 of 7 per cent collateral trust bonds was conservative under the circumstances and compared favorably with commissions allowed on similar issues in the past. The hearing was held for the purpose of receiving additional testimony on this point because of questions asked by Director Colston as to the reasonableness of the amount. J. P. Morgan & Co. had taken the bonds from the railroad company at 96.52 and formed a syndicate of about 400 members, who received the bonds at 97 and sold them at par. The profit of the Morgan company was a little less than one-half of one per cent, and of the 3 per cent received by the syndicate members Mr. Whitney testified that 1½ per cent went to the bond salesmen and after paying all expenses the profit to the syndicate members was 1.09 per cent. He said the cost of distributing securities is now much greater than formerly, particularly because the average sale is now about $3,300, as compared with $25,000 to $50,000 in former years. At the request of Director Colston he submitted a list of the syndicate members for the purpose of checking up any interlocking relationships with the railroad, but requested that it be not made public. Mr. Colston said it would be for the commission to decide whether the list should be made part of the record. Mr. Oldham testified that the commission is reasonable and described how the cost of distributing securities has been increased.

The Interstate Commerce Commission on September 13 issued an order granting the application for authority to issue the $25,000,000 of collateral trust gold bonds which were sold, subject to the commission's approval, on August 20, and also $25,000,000 refunding and improvement mortgage bonds to be pledged as part of the security for the collateral trust bonds. The order provides that the bonds shall be sold at a price of not less than 96½ per cent and that the proceeds shall not be used for any purpose other than that specified in the application.

PITTSBURGH & LAKE ERIE.—The Interstate Commerce Commission has issued an order authorizing this company to issue $2,400,000 of equipment trust certificates at 7 per cent to be used in the acquisition of 1,375, 55-ton, all-steel hopper cars, at a total estimated cost of $3,508,300. It is ordered that the certificates shall be sold at not less than 97 per cent of their face value and accrued interest, to give net proceeds of $2,328,000.

SEABOARD AIR LINE.—The Interstate Commerce Commission has certified its approval of a loan of $6,073,400 to aid this company in acquiring refrigerator cars at a cost of $1,058,000, in making additions and betterments at a total cost of $750,000, and in meeting its 1920 maturities aggregating $8,248,000. To meet the loan of the government the carrier itself is required to finance $3,982,600. The additions and betterments include ballasting, rail renewals, bridging, shop machinery and facilities, cinder pit and fuel facilities and additional industry tracks. The company has also applied to the commission for authority to issue $1,000,000 of three-year, 7 per cent, extended, secured gold notes for the purpose of extending part of its outstanding $4,000,000 of two-year, 6 per cent gold notes maturing September 15, and to pledge and repledge various securities for the notes, and also as security for the loan from the government.

ST. JOSEPH BELT.—The Interstate Commerce Commission has ordered a hearing at Washington on September 22 as to whether this company is entitled at all to the benefits of Section 204 of the Transportation Act, which provides for the reimbursement of deficits incurred by short line railroads during the period of federal control, and particularly as to whether the company during any portion of the period of federal control "operated its own railroad," within the meaning of those words as used in the law. The company has petitioned the commission for a certificate to the Treasury Department for the sum due the company, which it estimates at $165,000.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—The Interstate Commerce Commission has certified its approval of a loan of $898,925 to this company to aid the carrier in meeting its demand notes and in making additions and betterments. The amount of the loan from maturing obligations was $377,750, the total amount of such obligations being $1,511,000. The carrier is required to finance effectively for a period of not less than one year at a cost of not more than 7 per cent, the remainder, $1,133,250, of its maturities. The amount loaned for additions and betterments is $519,175, and the carrier itself is to finance an amount equal to the government loan for the same purpose. The additions and betterments include improvements to the Eads bridge at a cost of $129,000, a new yard at a cost of $44,900, completion of the upper Wiggins yard, $170,000; a viaduct, $35,000; equipment for car repair shop, $2,300; additional trackage, $109,250, and an extension to the Brooklyn shops, $494,700.

Railway Officers

Executive

Martin W. Walsh, vice-president and general manager of Memphis, Dallas & Gulf, with headquarters at Nashville, Ark., has been appointed receiver, effective September 10.

Warren S. Andrews, who has been appointed assistant to the vice-president of the Southern, with headquarters at Washington, D. C., as noted in the *Railway Age* of September 10, (page 467), served as general superintendent of transportation prior to this promotion. Mr. Andrews began railroad work in 1884 as operator for the Ohio & Mississippi, now part of the Baltimore & Ohio. Later he became train despatcher. In 1886 he went to the Great Northern as train despatcher, and in 1893 was appointed chief train despatcher and trainmaster of the Illinois Central. He served in that capacity until 1902, when he became trainmaster of the Southern. Afterwards he was promoted to assistant superintendent at Charlotte, N. C., and later to superintendent at Danville, Ky. While in that position he was transferred to Alexandria, Va. In 1905 he was appointed general superintendent of transportation, with headquarters at Cincinnati, Ohio.

Financial, Legal and Accounting

W. E. Harrington has been appointed assistant auditor of the St. Louis Southwestern of Texas, with headquarters at Tyler, Tex.

Cline C. Hine, general attorney of the Chicago, Indianapolis & Louisville, with headquarters at Chicago, has been appointed general solicitor, effective September 1, with the same headquarters, succeeding Perry McCart, resigned because of ill health.

Operating

R. E. Brooks has been appointed assistant superintendent of the Oregon Short Line, with headquarters at Nampa, Idaho, effective September 9.

E. B. Brock, Jr., has been appointed assistant to the general manager of the Gulf & Ship Island, with headquarters at Gulfport, Miss., effective September 1.

A. E. Warren, general manager of the Western lines of the Canadian National, with headquarters at Winnipeg, Man., has also been given jurisdiction over the lines of the Grand Trunk Pacific.

C. Garrity has been appointed terminal trainmaster in charge of the Chicago terminal territory of the New York, Chicago & St. Louis, with headquarters at Stony Island (Chicago), Ill., effective September 15.

H. H. Brewer, general superintendent of the Grand Trunk Pacific, with headquarters at Winnipeg, Man., has been appointed assistant general manager of the lines of the Canadian National from Armstrong, Port Arthur, and Duluth, west to Edmonton, Alta.

C. F. Martin, inspector of transportation on the Canadian National, with headquarters at Winnipeg, Man., has been promoted to superintendent of transportation of the Pacific division of the Canadian National and the Grand Trunk Pacific, with headquarters at Vancouver, B. C.

J. R. Cameron, assistant general manager of the Western lines of the Canadian National, with headquarters at Winnipeg, Man., has been appointed assistant general manager of the Pacific division of the Canadian National and the Grand Trunk Pacific, with headquarters at Vancouver, B. C.

F. J. MacKie, superintendent of the Slaton division of the Atchison, Topeka & Santa Fe, with headquarters at Slaton, Tex., has been promoted to assistant to the general manager, with headquarters at Topeka, Kan., in charge of personnel and labor matters on the Eastern lines. **John Dyer** has been appointed assistant to the general manager with headquarters in Amarillo, Tex., with jurisdiction over the Western lines, and **C. S. Kirkpatrick,** assistant to the general manager with jurisdiction over the Gulf lines, with headquarters at Galveston, Tex. These men will constitute a committee with **F. A. Gregg,** who has been appointed assistant to the vice-president at Chicago, as chairman, having jurisdiction over personnel problems.

John W. Cuineen, who has been appointed superintendent of the New York, New Haven & Hartford, with headquarters at Danbury, Conn., as noted in the *Railway Age* of August 27 (page 338), served as assistant superintendent of the Central New England prior to this promotion. Mr. Cuineen was born on June 2, 1869, at Leeds, Eng. He received a public school education and began railroad work in 1881 as messenger boy for the Lehigh Valley. In 1884 he became telegraph operator, and with the exception of an interval of some months, served in that capacity until 1888, when he was appointed train despatcher. In 1905 he went to the Missouri Pacific in the same capacity, and in October, 1906, accepted that position with the Central of New England. He was promoted to chief despatcher in 1907, and in May, 1911, was appointed trainmaster. He was promoted to assistant superintendent in January, 1912.

J. W. Cuineen

Traffic

I. T. Sparks has been appointed district freight and passenger agent on the Southern Pacific, with headquarters at Eugene, Ore.

C. W. Runge has been appointed district freight and passenger agent on the Southern Pacific, with headquarters at El Centro, Cal.

E. F. Anderson has been appointed freight claim agent in charge of loss and damage and overcharge claims of the El Paso & Southwestern, with headquarters at El Paso, Tex., effective September 1, succeeding W. S. Dawson.

H. A. Benjamin has been appointed assistant general freight and passenger agent of the Waterloo, Cedar Falls & Northern, with headquarters at Waterloo, Ia., and **T. J. Cleary** has been appointed commercial agent with the same headquarters.

F. G. Adams has been appointed assistant general freight agent of the Canadian National and the Grand Trunk Pacific, with headquarters at Winnipeg, Man., in charge of solicitation of freight traffic. The following have been appointed division freight agents of both roads: **John Paul** at Winnipeg, **R. M. Milliken** at Regina, Sask., **W. A. B. Russell** at Calgary, Alta., **R. H. Bell** at Edmonton, Alta., and **L. V. Druce** has been appointed commercial agent at Edmonton.

James C. Pond, assistant general passenger agent of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Chicago, will retire on October 1, after 51 years of continuous railroad service. Mr. Pond was born at St. Lawrence, Minn., on November 30, 1857, and began railroad work as a

messenger boy on the St. Paul & Sioux City, in August, 1869. He served subsequently on that road as a telegraph operator, clerk and chief clerk until 1879, when he left to go with the Northern Pacific as ticket agent at St. Paul, Minn. After advancing through several grades to assistant general ticket agent, Mr. Pond left the Northern Pacific to become general passenger agent of the Wisconsin Central, with headquarters at Milwaukee, Wis., which position he held until April, 1909, when he was appointed assistant general passenger agent of the Soo Line, which had absorbed the Wisconsin Central, with headquarters at Chicago, the position he now holds.

William S. Basinger, whose promotion to passenger traffic manager on the Union Pacific, with headquarters at Omaha, Neb., was announced in the *Railway Age* of September 3 (page 426), was born on August 28, 1870, at Savannah, Ga. Mr. Basinger entered railway service as a clerk in the office of the general agent of the Union Pacific at Kansas City, Mo., in October, 1891. Six years later he entered the operating department of the Leavenworth, Kansas & Western, at Leavenworth, Kan. In October, 1903, he was appointed superintendent of this road and two years later became general agent. He was appointed trainmaster on the Union Pacific, with headquarters at Kansas City, Mo., in April, 1905, and in July, 1907, became assistant general passenger agent at Omaha, Neb. Following this service he was for three years assistant to the director of traffic of the Harriman lines, with headquarters at New York and Chicago. He returned to the Union Pacific as general passenger agent, with headquarters at Omaha, in February, 1913, which position he left March 1, 1918, to become assistant in the division of traffic of the United States Railroad Administration at Washington, D. C. When the roads returned to private control he returned to the Union Pacific as assistant passenger traffic manager at Omaha, Neb., the position he held at the time of his recent promotion.

Engineering, Maintenance of Way and Signaling

R. H. Coulson has been appointed district engineer of the Western district of the New York Central Lines, with headquarters at Buffalo, N. Y., succeeding N. F. Thompson, deceased.

Louis V. Bean, who has been appointed chief engineer of the Georgia, Florida & Alabama, with headquarters at Bainbridge, Ga., as noted in the *Railway Age* of August 27 (page 378), was born on April 3, 1887, at Lexington, Ky. He attended the College of Civil Engineering of the University of Kentucky from 1904 until 1907 and began railroad work shortly afterward as rodman in the office of the division engineer and road master of the Cincinnati, New Orleans & Texas Pacific at Lexington. In May, 1909, he went to the Central of Georgia as draughtsman in the office of the chief engineer at Savannah, Ga. He was appointed resident engineer in February, 1910, and assistant engineer in 1911, remaining meantime at Savannah. He resigned on November 1, 1911, to become second assistant engineer to the engineer of roadway of the Atlantic Coast Line, with headquarters at Savannah. In 1915 he was promoted to first assistant engineer. Mr. Bean served with the Building Division of the Construction Division of the United States Army from July, 1918, to July, 1920.

L. V. Bean

C. B. Mutchler, assistant superintendent and signal engineer on the Grand Trunk Pacific, with headquarters at Melville, Sask., has been relieved of his duties as signal engineer.

John Greer has been appointed assistant engineer of the Portland division of the Grand Trunk, with headquarters at Portland, Me., succeeding R. F. Nicholson, resigned, effective September 1.

H. Hulatt, manager of telegraphs of the Canadian lines of the Grand Trunk, with headquarters at Montreal, Que., has been appointed consulting manager of telegraphs of the Western lines, effective September 10.

Mechanical

J. E. Stone has been appointed assistant master mechanic of the Salt Lake division of the Southern Pacific, with headquarters at Sparks, Nev., succeeding Paul Jones, who has resigned.

Purchasing and Stores

Henry Hansen, chief clerk to the purchasing agent of the Northern Pacific, has been appointed assistant purchasing agent, with headquarters at St. Paul., Minn., effective August 15.

Special

W. L. Barnes, superintendent of transportation of the Chicago, Burlington & Quincy, has been appointed executive manager of the Car Service Division of the American Railroad Association, with Office at Washington, D. C., reporting to the chairman of the Advisory Committee of the Association of Railway Executives. Mr. Barnes was formerly a member of the Commission on Car Service and has recently been special assistant to the chairman of the Advisory Committee.

Floyd L. Bell, publicity director of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., has been appointed director of public relations, a newly created position. In this capacity, Mr. Bell will have charge of all publicity for the Frisco System, and will also deal with civic and public organizations in promoting a thorough understanding between the public and the railroad. Before his appointment as publicity director of the Frisco on the return of that road to private control, Mr. Bell was engaged in daily newspaper work for 14 years.

Obituary

George Leighton, Civil engineer, and formerly assistant engineer of the Delaware, Lackawanna & Western, at Bath, N. Y., died on September 13 at Glenburn, Pa., in his sixty-second year. After his service with Delaware, Lackawanna & Western, Mr. Leighton was associated with the planning and construction of the Pennsylvania tunnels under the East River, also of the East Shore terminal at Charleston, S. C.

QUITE LIKE OLD TIMES.—"It's quite like old times," said the head of a firm which specialized in railroad stocks and bonds, "in the old days." Whereas this house three months ago could boast of transacting but a few hundred shares of railroad stocks daily and trades in less than 20 bonds, on Wednesday it did 26,000 shares of railroad stocks and $69,000 of bonds, with every indication of these totals being improved upon during coming days. Many firms are astounded at the country-wide enquiries regarding low-priced bonds of some of the smaller railroads. Their statistical departments are kept busy looking up the status of roads which so far as the tape was concerned a month ago were long since dead, but which now appear to be very much alive. One firm received the following wire from a client who is in the Canadian Rockies on a vacation: "Buy me 25 railroad bonds at a price under 40 which in your estimation have a chance of doubling in price during next two years. Interest rate immaterial."—*The Wall Street Journal Straws.*